

# Western Australian Year Book 1971

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# The WESTERN AUSTRALIAN YEAR BOOK

No. 10—1971

**GIVES A COMPREHENSIVE VIEW OF  
THE STATE OF WESTERN AUSTRALIA  
AND ITS DEVELOPMENT.**

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Physical Features, Climate,  
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Communication  
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A 35" x 24" map in colour of Western Australia;

Twenty-one pages of illustrations, many in colour.

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You can have the last word by quoting from the official statistics in the Western Australian Year Book.

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#### NARROWS BRIDGE, PERTH

Opened for traffic on 13 November 1959, this bridge over the Swan River is part of the city's expanding freeway system and a major link with suburban and industrial areas to the south.

*Block by courtesy of The Swan Brewery Company Limited*



COMMONWEALTH BUREAU OF CENSUS AND STATISTICS  
WESTERN AUSTRALIAN OFFICE

# WESTERN AUSTRALIAN YEAR BOOK

No. 10 - 1971

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F. W. SAYER

Deputy Commonwealth Statistician and Government Statistician

*Registered at the General Post Office, Perth  
for transmission through the post  
as a book*

#### **CORRIGENDUM**

The composition of the Commonwealth Industrial Court and the Commonwealth Conciliation and Arbitration Commission at 31 December 1970, as given on page 480, should read as follows:

Industrial Court—Chief Judge and seven other Judges; Conciliation and Arbitration Commission—President, six Deputy Presidents; Senior Commissioner, fourteen Commissioners and three Conciliators.



## PREFACE

This issue of the *Western Australian Year Book* is the tenth of a new series. The old series, originally published for the year 1886 and discontinued in 1905, developed from the Blue Books of the Colonial Office, London, which contain the early statistical records of Western Australia.

The aim of the Year Book is to provide a general description of the State of Western Australia and its development, in terms of its geography, climate and geology, the plants and trees which grow on its surface, its animal life, and the activities and social patterns of its people in relation to this physical environment. Ample use has been made of statistical tables to supplement the descriptive text and to give a numerical account of what has been happening in the several fields of production, trade and commerce, population and social condition, the functions of government, and so on. A list of illustrations, in the form of plates, graphs and maps, and a synopsis of the contents are given in the opening pages.

The statistical tables in this issue relate in the main to periods ended 30 June, or 31 December 1969 and, in general, were the latest available at the time the manuscript was prepared. Because of the time required for editing and printing the Year Book, later data on a particular topic will often be available in mimeographed publications or on request from the appropriate section of this Office. The descriptive text has been taken forward, wherever possible, to 31 December 1970 and incorporates the effect of 1970 Commonwealth and State legislation or administrative decisions. In some instances, the most recent developments have been included in the *Appendix*.

Among new or revised material included in this issue, the following items may be especially mentioned.

Chapter II, Part 3. Revision of the general text on the Flora of Western Australia and insertion of an article on the family Rutaceae.

Chapter III. Inclusion of sections on Commonwealth Electoral Divisions in Western Australia and government administration, including the functions of State Departments. Insertion of an article covering a short history of the Public Works Department.

Chapter IV, Part 1. Insertion of sections on population in local government areas and overseas arrivals and departures.

Chapter VIII, Part 1. Addition of a section on the Wheat Delivery Quotas Plan.

Chapter IX, Part 1. Inclusion of a section on encouragement of overseas trade.

Chapter IX, Part 3. Insertion of an article on the Port of Albany.

Chapter X, Part 1. Inclusion of sections on employer organisations and employee organisations.

Chapter X, Part 3. Revision of the section on wholesale price indexes.

Appendix. Insertion of articles on the Australian Integrated Economic Census, 1968-69 and the development of local government in Western Australia.

A wide range of current statistics is available in the periodical publications produced by this Office in printed or mimeographed form, and listed at the back of the Book, as well as in the various publications issued by the Commonwealth Statistician, Canberra and by the Deputy Commonwealth Statisticians in other States. Many of the statistical tables in the Year Book have been adapted from information appearing in the several publications comprising *Statistics of Western Australia*, to which reference should be made if more detail is required.

The reader's attention is drawn to the information service and library facilities provided by this Office, where all publications of the Bureau of Census and Statistics are available for reference. Business men, manufacturers, primary producers, government authorities, students and the public generally are invited to make full use of these services.

My thanks are again expressed to the many government officials and others who willingly collaborated in the preparation of letterpress or in the review of existing matter, to BP in Western Australia, The Swan Brewery Company Limited, the Department of Agriculture, the Forests Department, the Fremantle Port Authority, the Department of Lands and Surveys, The Library Board of Western Australia, the National Parks Board of Western Australia, the Commonwealth Department of Primary Industry, and the State Electricity Commission for the loan of blocks used in some of the illustrations, to Mt. Newman Mining Co. Pty. Limited, the Australian News and Information Bureau, and the Public Works Department for the use of photographs, and to the Government Printer and his staff for their continuing interest in the work and for assistance and advice freely given at all times.

The authors of the articles appearing in Chapter II are especially thanked for contributions of new material and for their ready co-operation in revising the earlier text.

I wish to pay particular tribute to the Editor of Publications, Mr. J. E. Gowdy, B.Ec. (Hons.), who prepared various sections of the Year Book and edited the remainder.

In the preparation of the Year Book, every care has been taken to ensure that, as far as possible, the statistical and other material are free from error. Limitations of space restrict the range of contents or amount of detail that can be included in this publication but I shall be grateful to those who will be kind enough to make suggestions for improvement.

Readers requiring the main statistical information of the Year Book in a concise form are referred to the *Western Australian Pocket Year Book*.

F. W. SAYER  
Deputy Commonwealth Statistician  
and  
Government Statistician

Commonwealth Bureau of Census and Statistics,  
Western Australian Office,  
PERTH, W.A.

10 June 1971

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## COAT OF ARMS OF WESTERN AUSTRALIA



Notification that Her Majesty the Queen had approved certain Armorial Ensigns and Supporters for Western Australia appeared in the *Government Gazette of Western Australia* of 18 April 1969. The coat of arms is described in the following terms.

For Arms: Argent on a base wavy Azure charged with a barrulet wavy Argent a Black Swan naiant proper. And for Crest: On a Wreath Or and Sable The Royal Crown between two Kangaroo Paw (*Anigosanthos Manglesii*) flowers slipped proper. And for Supporters: On either side a Kangaroo holding in the exterior fore-paw a Boomerang proper.



FLORAL EMBLEM OF WESTERN AUSTRALIA  
(Mangles' Kangaroo Paw)



By a proclamation published in the *Government Gazette of Western Australia* of 18 November 1960, the flower of the plant *Anigosanthos Manglesii* D.Don was declared to be Western Australia's floral emblem.

A description of the plant, its habit and distribution appeared in the *Official Year Book of Western Australia*, No. 2—1960.

## ROUNDING OF FIGURES

Many of the figures appearing in the tables have been rounded (to thousands or, in some cases, millions), without making those adjustments which would be needed to make the rounded figures add to the rounded total. It is for this reason that figures do not always add to the totals shown in the tables.

Percentages appearing in the tables have been corrected to the first (or second) place of decimals without making those adjustments which would be necessary to make the percentages so expressed add to precisely 100.

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*Including:* Local Government Areas  
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## CHAPTER I—DISCOVERY, COLONISATION AND DEVELOPMENT

### Western Australia—A Historical Survey

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The earliest inhabitants of Western Australia were the people now known as the Australian Aborigines, a brown-skinned people of medium height and slender build, who migrated to Australia from Southern Asia at least 20,000 years ago. In the absence of animals suitable for domestication or grasses suitable for cultivation, the Aborigines remained a nomadic people dependent on hunting and food collecting and with simple but effective implements made of stone, bone or wood. Nevertheless they had achieved a delicate balance with an extremely harsh environment, and the limitations of their technology were compensated for by an extremely complex and satisfying religious and cultural life.

For many thousands of years the Aborigines occupied Australia in tranquil isolation from the rest of the world. It is likely that Indonesian fishermen and traders, and perhaps some Malays and Chinese, occasionally visited some parts of the continent including the Kimberley coast, but their influence cannot have penetrated far inland. To the developing civilisation in Europe, Australia remained a complete mystery; a hypothetical Great South Land was often drawn in at the bottom of maps of the world, but there was no real evidence for its existence. By the sixteenth century, however, the improvement of shipbuilding and navigational techniques enabled Portuguese and Spanish sailors to explore the Pacific and come close to the north-east coast of Australia. The long period of isolation was nearing an end.

The first Europeans definitely known to have visited the shores of Western Australia were the crew of the tiny Dutch sailing ship 'Eendracht', which in October 1616 explored the area now called Shark Bay. We can speak with certainty about the visit of the 'Eendracht' because its skipper, Dirk Hartog, left behind a pewter dish fixed to a pole and inscribed with the details of the incident. It is possible that other European sailors had reached Western Australia before 1616; indeed there are tantalising fragments of evidence which suggest this, but Hartog and the 'Eendracht' remain the earliest authenticated visitors.

From 1616 onwards, however, Dutch vessels touched on the Western Australian coastline in rapid succession, some, such as the 'Batavia' in 1629 and the 'Vergulden Draeck' in 1656, being wrecked there. All of these visits were largely accidental, being brought about by the strong westerly winds which blew ships engaged in the thriving trade between Holland and the East Indies off their course. One exception to this rule was the visit in 1644 of Abel Tasman, who was sent by the authorities of the Dutch East India Company to explore the north and north-west coasts of the new land about which reports were constantly being received. Tasman named the western end of the continent 'New Holland', but like all the other early visitors he was not very impressed by what he saw of the arid terrain and its aboriginal inhabitants. Thus, although the Dutch had pieced together quite a lot of information about Western Australia by the mid-seventeenth century, they showed no interest in further exploration or settlement.

The first British ship to reach Western Australia was almost certainly the 'Trial', which in May 1621 was wrecked in the vicinity of the Monte Bello Islands. Two boatloads of the survivors made their way to Batavia. There was no further British activity in the area until 1688 when a group of buccaneers in the 'Cygnet' spent some time on the north-

west coast, beaching their vessels for repairs in King Sound. One of these men was William Dampier, who subsequently published an account of 'New Holland' in a volume called *New Voyage Around the World* which attracted a great deal of attention. The British Government was stirred into outfitting the 'Roebuck' and commissioning Dampier to make a further voyage of exploration. In 1699 Dampier again visited the north-west coast of Australia, from Shark Bay to the Dampier Archipelago, and kept a careful record of all that he saw. On both occasions Dampier, like the Dutch, formed an unfavourable impression of 'New Holland', which he described as dry, sandy, and unsuitable for agriculture. 'The inhabitants of this country' Dampier described as 'the miserablest people in the world', and he held out little hope of profitable trade with them. Such comments did not encourage governments to spend further money on investigation, and for another hundred years there was little activity off the west coast.

In the meantime, Captain James Cook in the 'Endeavour' had in 1770 discovered the east coast of Australia, and his reports about it were much more favourable than those of earlier sailors about the north and west coasts. Cook formally claimed the eastern portion of 'New Holland' for the British Crown and named it 'New South Wales'. Thus it came about a few years later that the British Government, no longer able to send convicts to a newly-independent America and with gaols bursting at the seams, decided to make New South Wales the site for a new penal colony.

In January 1788, Captain Arthur Phillip arrived at Sydney Cove with a party of convicts and marines and the European occupation of Australia had begun, though it was some time yet before Western Australia was colonised, for Phillip's commission as first Governor of New South Wales gave him authority over little more than half the continent. In 1825 Governor Darling's commission was extended beyond that of his predecessors to cover two-thirds of the country, but the western third remained unclaimed territory. However, the colonisation of New South Wales had provided a base for more detailed exploration of Australian coastal waters and by the 1820s the western coast had been extensively charted by two enterprising British naval officers, Matthew Flinders and Philip Parker King, and by French navigators such as Baudin, Hamelin, and Freycinet.

The interest being shown in 'New Holland' by the French alarmed the British Government slightly, and although the area was still not formally claimed for Britain a small military garrison under the command of Major Edmund Lockyer was sent from Sydney to keep out 'trespassers'. On Christmas Day 1826 Lockyer and his party arrived at the majestic anchorage of King George Sound; the tiny and isolated outpost they established there was the first British settlement in Western Australia. This was not intended to be a permanent settlement, but before its abandonment in 1831 a full-scale colony was established several hundred miles up the west coast.

### THE SWAN RIVER COLONY

The British authorities were reluctant to add the trouble and expense of a new and remote colony to their already vast imperial responsibilities, but their hand was forced by a combination of pressures. A naval officer named James Stirling, who was in Australian waters in 1826-27 in command of H.M.S. 'Success', secured permission from Governor Darling to visit the west coast. In March 1827 Stirling spent a fortnight examining the Swan River area, hitherto better known to the Dutch and French than to the British. His report, and that of the New South Wales Government Botanist who accompanied him, spoke in glowing terms about the desirability of establishing a permanent settlement on the Swan, and Stirling offered to lead a party for this purpose. Governor Darling was easily persuaded to endorse the proposal but the British Government firmly rejected it and the scheme might well have ended there had Stirling not been invalided back to London in 1828. Once he had recovered from his illness Stirling lost no time in seeking support for his plan for a Swan River Colony, and he soon aroused the interest of a syndicate of capitalists who were prepared to invest large sums there. Stirling's frequent visits to the Colonial Office, together with his evidence that there was considerable public support for a new colony and recurrent rumours that the French still had designs upon 'New Holland', at last overcame official reluctance.



In November 1828 Captain Fremantle was dispatched in H.M.S. 'Challenger' to take formal possession of the western third of the Australian continent, and this he did on 2 May 1829. In the meantime the Colonial Office had announced that a colony was to be established at the Swan River with Captain Stirling as its first Lieutenant-Governor and that all settlers who arrived there before the end of 1830 would be granted one acre of land for every one and sixpence worth of capital, stock or equipment they took with them, with a further 200 acres for every labourer they took. These grants were to be absolutely free provided that the land was developed within ten years of arrival, though the settlers had of course to meet the expense of transporting themselves, their families and their servants to the Colony.

These were remarkably favourable terms and they caused a great deal of excitement in an England where social status was still largely dependent on landownership and where land was increasingly difficult to obtain. The Colonial Office was bombarded with inquiries about the proposed colony and there were references in the press to 'Swan River Mania'. Many of the inquirers ultimately stayed at home, or went elsewhere but there was no shortage of those who decided to throw in their lot with the new Colony. Perhaps the most famous of the early colonists was Thomas Peel, son of a wealthy Manchester manufacturer and merchant, and cousin of the Tory Prime Minister, Sir Robert Peel. Peel was promised no less than 250,000 acres of land on the south bank of the Swan in return for taking out 450 workmen and sinking his fortune of at least £20,000 in the Colony. Many of the other colonists were ex-naval or military men who could not afford to bring up families in England on the half-pay to which they had been retired after the Napoleonic wars. Others were younger children of the minor gentry and clergy with small expectations at home, or merchants who had amassed a modest fortune and wished to take up land. Such people were attracted to the Swan River scheme not only by the cheap land but because, unlike New South Wales, this was to be a colony for free men and free men only.

Captain Stirling set sail for the Colony in the transport ship 'Parmelia', which was accompanied by H.M.S. 'Sulphur' bearing a detachment of troops under the command of Captain F. C. Irwin. Other officials in the party were J. S. Roe, who was to be Surveyor-General and Peter Brown, the Colonial Secretary. The Colonial Chaplain, Rev. J. B. Wittenoom, followed a few months later. The 'Parmelia' arrived off Rottnest Island on 1 June 1829, followed by the 'Sulphur' a week later, and on 18 June 1829 a Proclamation was read and the Colony officially came into being. However, wet and wintry weather conditions kept the shiploads of settlers who began to arrive, huddled in tents on Garden Island. The name 'Fremantle' was bestowed on a site at the mouth of the Swan River and this was then proclaimed to be the port of the Colony. The choice of a capital was more difficult and several sites were toyed with before a spot at the foot of Mount Eliza, twelve miles up river, was selected. The name 'Perth' was given to the capital, this being the shire represented in the House of Commons by the Secretary of State for Colonies, and the new town was founded on 12 August 1829, with the ceremonial felling of a tree.

The colonists now began to move up to Perth from Garden Island, and by the end of 1829 most of the central blocks had been allocated and occupied. The number of settlers built up with embarrassing speed for twenty-five ships had arrived between June and December and by the end of 1831 the permanent population had reached 1,500. The surveyors could not keep pace with the spate of new arrivals clamouring for immediate land grants, so that the land was occupied most haphazardly and grants allocated with little knowledge of its quality.

In the first instance exploration and settlement was to the south of Perth. Once the land up the river to Guildford had been taken, small settlements were made down the coast at Bunbury and Augusta and on the Vasse River. A party from Perth visited the military outpost at King George Sound, and after that garrison was withdrawn to Sydney in 1831 the area was renamed the Plantagenet District with Albany as its town, and settled by intending farmers. Albany was also important to the infant colony as a port, for it

had a much better harbour than Fremantle and it was also closer to the main shipping route to Sydney. For much of the nineteenth century therefore, most overseas vessels called at Albany and goods and mail were then carried to Perth either overland or in small coastal packets. Another party led by Ensign Dale at length crossed the Darling Range and found good land in the York-Northam-Beverley district and after Stirling had verified this for himself settlement was allowed to spread in this direction also.

Unfortunately the rate of agricultural development was much slower than had been hoped and the first few years of the Swan River Colony were just such a struggle for subsistence as they had been in New South Wales. Few of the colonists were experienced practical farmers. Few had any conception of what Australia would be like or of the difficulties in bringing virgin bush under cultivation. Few had any idea what implements would be needed in the Colony, or how little use they would have for their fine carriages, their pianos and their gracious furniture. Few indeed were accustomed to, or capable of, the manual labour which the shortage of workmen in the Colony soon made imperative. Moreover many of the workmen who did come to the Colony were little more suited to the pioneering life than their masters, having been recruited from among the paupers of London and other big towns in the south of England.

The delays which occurred in surveying and granting land in the early years added to the problem, as did the poor quality of the soil near Perth and along the coast. Further south where the soil was richer there were dense hardwood forests which were difficult to clear. The best agricultural and pastoral lands of Western Australia lay further inland and to the north and were not opened up for some years. In the meantime many settlers became discouraged and left the Colony. Rumours reached England that the Swan River Colony was a stagnant backwater, a place better avoided, and this discouraged further investment and migration.

It was particularly unfortunate that Thomas Peel's grandiose plan did not succeed, for this might have given the Colony the boost it needed. Peel fulfilled his undertaking to bring out 450 immigrants but he arrived too late to qualify for his original grant on the south bank of the Swan and had to be content with a quarter of a million acres of coastal sandplain and swamp between Armadale and Pinjarra. He proved incapable of running his vast estate, his men deserted him, his partner failed to send essential equipment and supplies, and the whole scheme collapsed. A land settlement scheme at Australind organised by the Western Australian Company, a few years later, was also unsuccessful.

For those who remained in the Colony and settled down to adapt themselves to the hard conditions and make the best of their new home, life was relatively uneventful through the 1830s and 1840s. Even after the establishment of colonies in South Australia and Victoria in the mid 1830s the Swan River settlers were still isolated by many hundreds of miles from other settlements of Europeans, and visitors were few. The Aborigines did not offer any real resistance to the white men who displaced them from their ancestral lands, though in 1834 thirteen Aborigines and one white policeman died as a result of the 'Battle of Pinjarra', the only serious clash between the two peoples.

The colonists were too scattered and too absorbed in wresting a living from the soil for there to be much social and cultural life, though in Perth itself there were regular balls, picnics, race meetings, and musical evenings, with Government House the centre of polite society. From the beginning the Swan River settlers emphasised the fact that theirs was a 'gentleman's colony' as opposed to the 'pick-pocket colonies' of New South Wales and Van Diemen's Land, and for many years Western Australia remained the most 'English' of the antipodean colonies. Divisions between classes were naturally more fluid and more informal than in Britain, but an elite group of wealthy land-owning families quickly established a monopoly, first of social prestige and later of political influence. There were few facilities for education in the early years. Those who could afford to do so imported governesses for their children until they were old enough to be sent to English boarding schools, but most children received scarcely any schooling. There were few clergymen in the Colony but devoted lay people saw to it that religion was not entirely

neglected. From 1840 onwards the Colonial Government subsidised the main denominations and Anglican, Wesleyan and Congregational churches were built. Catholic priests arrived from Ireland in the 1840s, and in 1846 a party of Spanish Benedictine monks founded a monastery and mission to the Aborigines at New Norcia.

Until 1838 Captain Stirling remained Governor of Western Australia, as the Swan River Colony came to be known following the suggestion by Matthew Flinders that the continent as a whole should be called Australia. He was succeeded by John Hutt, who held the office from 1839 until 1846. For the first few years Stirling wielded absolute and undivided authority. In 1832 Legislative and Executive Councils were created, composed of a handful of government officials and later a few wealthy colonists nominated by the Governor, but in practice for more than half a century the Governor remained the supreme power in the Colony.

### THE CONVICT ERA

By the late 1840s, two decades after the Colony's foundation, the population of Western Australia was still less than 5,000 strong and the rate of economic development remained painfully slow. An impasse had been reached. The Colony could not attract the labour and capital it needed until it showed signs of more dynamic progress, but without additional labour and capital, progress was impossible. In desperation the leading colonists swallowed their pride and asked the British Government to send out convicts to Western Australia. Their request was acceded to with embarrassing speed, for by this time New South Wales had refused to accept any more convicts and Britain was once again facing its old problem of overcrowded gaols. In June 1850 the first boatload of convicts arrived, before any preparations had been made for their reception and deployment. Convicts continued to be transported to the Colony for a period of eighteen years, the total number sent being 9,668, all of whom were men. The last party arrived in 1868 and thereafter the number of convicts gradually dwindled, though it was not until 1886 that the convict system was finally disbanded.

Each convict spent an initial period under direct government control, usually employed on public works, and then was given a ticket-of-leave to work for a private employer in one of the country districts. A man with a ticket-of-leave remained under the supervision of police and magistrates and could be re-arrested for even the most trivial of offences, but he had a choice of employers and had to be paid wages. In due course a well-behaved ticket-of-leave holder could apply for a conditional pardon, which made him a free man provided that he did not return to the United Kingdom before the expiration of the full term of his sentence. This scheme differed considerably from the haphazard assignment system of New South Wales, and the treatment of convicts in Western Australia was also less brutal than had been the case in the eastern colonies. Chain gangs, solitary confinement, and the cat-o'-nine-tails were still used, but they were used less frequently and less indiscriminately.

One of the most obvious ways in which the convicts made an impact on Western Australia was that their labour gave the Colony its first good roads, bridges, and public buildings. Before 1849 there had been neither the money nor the labour for public works; even between Perth and Fremantle most of the traffic had been by river because the road was so bad. The availability of convict labour changed this and though for the first few years the convicts were used mainly for the construction of buildings for themselves and their gaolers, later the benefits of their work were spread around the Colony. The streets of Perth and Fremantle were levelled and improved; a main road to Albany was cleared; scores of bridges were built including a new causeway at Perth; jetties were constructed at Bunbury and Busselton; and courthouses were built in all the major country towns. In Perth itself the convicts were solely or partially responsible for such buildings as the old Perth Boys' and Bishop Hale's schools, the Town Hall, the Pensioners' Barracks, and a new Government House. By 1870 Perth gave an appearance of solidity and prosperity and looked like a town rather than an untidy village.

Convict labour also gave a boost to agriculture and other industry, for the settlers now had a much larger work force on which to draw. Moreover there were more people to be fed, clothed, and housed, and there was a more reliable flow of shipping to and from the Colony, so that both the internal and external market for colonial produce was expanded. The introduction of convict transportation also injected much needed capital into the Colony, for the British Government had necessarily to spend a great deal of money on feeding, clothing, and guarding the convicts.

As a result of these and other factors the Colony developed much more rapidly in the 1850s and 1860s, the convict decades, than it had done in its first twenty years. The population soared from 5,886 in December 1850 to 22,915 in December 1869, and clearly the arrival of nearly ten thousand convicts and five and a half thousand assisted migrants, sent out as part of the Colony's bargain with the British Government, had a lot to do with this. The total area of land under cultivation increased sixfold in the same period and the number of sheep, cattle and other livestock kept pace with this rate of expansion. Wool-growing boomed just as it had done in the eastern colonies thirty years before, and this was particularly valuable because it provided the Colony with an export industry, most of the clip going straight to Britain. Other useful exports were hardwood timber to South Australia, sandalwood to China and horses to India.

With so much progress being made, some colonists began to feel that the Colony was ready to stand on its own feet again. At much the same time the British Government came around to the view that transportation was an expensive and inefficient method of dealing with the penal problem and in 1865 it announced that no further convicts would be sent to Western Australia after 1868. The eastern Australian colonies were jubilant at the news, for they had long objected to the steady trickle of ex-convicts making their way across the continent, and most Western Australians were also pleased with the decision. However, in the 1870s and 1880s it became apparent that the Colony had been more dependent on the convict system than most people had realised. In the twenty years after the end of transportation the rate of population growth dropped back to only half that of the previous twenty years, and for a time the agricultural industries actually lost ground. A series of bad seasons aggravated the problem and food supplies had once again to be imported. Fortunately the export of sandalwood and hardwoods continued to prosper and the pastoral industry also flourished, the total number of sheep in the Colony being in excess of 1½ million by the mid-1880s. Another bright feature of the period was the dramatic rise of the pearling industry off the north-west coast to become a valuable export-earner.

As time passed, the search for minerals, timber, and better farming land, plus curiosity and adventurousness, led the colonists to explore their vast territory more widely and the frontiers of settlement spread. In the 1850s and 1860s the South-West was extensively occupied as far south as Albany and Kojonup, and to the north the Greenough district was opened up and quickly became the principal wheat-producing region. In the 1870s the pastoralists pushed further north to occupy the De Grey, Gascoyne and Murchison districts, and by the 1880s even the Kimberley districts were beginning to be settled. The completion in 1877 of the Overland Telegraph line connecting Perth with Adelaide and Darwin and thence with the outside world did much to reduce the isolation of the Colony, and railway building in the late 1870s and the 1880s improved communication and transport within the Colony. However, the scope of such works was limited by the impoverishment of the colonial treasury in the post-transportation period.

Part of the price which the colonists paid for their convict labour was that political development was very slow. Throughout the convict era Western Australia was ruled by semi-autocratic Governors sent from Britain, with the aid of their paid officials and a few prominent settlers chosen by themselves. Once transportation ended the colonists lost no time in agitating for a greater voice in the conduct of affairs, and in response to their demands a new constitution was introduced in 1870 embodying the principle of representative government. Thereafter the Legislative Council consisted of eighteen members, twelve of whom were elected by the colonists, and was presided over by its own Speaker rather than by the Governor. However, the powers of the Council were very restricted and when the Governor and the Council clashed, the former always prevailed.

The introduction of 10,000 convicts changed the character of Western Australian society much less than many people feared. Naturally there was a slight increase in lawlessness but few of the convicts committed further serious crimes in the Colony and bush-ranging was less common than it had been in eastern Australia. The Colony was so isolated that few convicts attempted to escape from it, though a party of sixty Irish Fenians who arrived on the last convict ship caused some trouble. One of them, John Boyle O'Reilly, escaped by stowing away on an American whaler in 1869 and seven years later he successfully arranged for a group of his friends to abscond from Fremantle Gaol to another American ship, the 'Catalpa', which escaped because the local authorities were afraid to fire on the American flag. Such incidents were rare, however. Most of the convicts gave no trouble at all, and the policy of dispersing them around the agricultural districts enabled them to be absorbed so easily that they soon became indistinguishable from the rest of the working-class population. Since all of the convicts were men and few of their wives were prepared to accompany them, even when offered a free passage, the ratio of men to women in the Colony rose as high as two to one for a time. However, the Government saw to it that most of the assisted migrants brought out to the Colony were young single women, mostly Irish, and this helped to redress the balance of the sexes. Fortunately there was little prejudice against the convicts once they had served their sentence, and marriages between ex-convicts and free women were common. At the other end of the social ladder, the grip of the old-established land-owning families on the affairs of the Colony remained unchallenged during and immediately after the transportation period. Western Australia was a quiet and conservative Colony and retained its quaintly 'English' flavour well into the 1880s. Though no longer the stagnant backwater of the 1830s and 1840s, it was still very much the 'Cinderella' of the Australian group of colonies when compared with its brash and prosperous neighbours. However, before the end of the century the state of the Colony was altered dramatically by the discovery of gold.

### THE GOLD RUSHES OF THE 'NINETIES

The Western Australian colonists had always hoped that one day gold would be found in their Colony, just as it had been in most of the others, and in 1885 their dream began to come true. The first goldfield to be proclaimed as such was situated at Halls Creek in the Kimberley district, a remote spot some 300 miles east of Derby and 250 miles south of Wyndham. Despite its extreme inaccessibility and the scarcity of food and water there, several thousand men flocked to it as soon as the strike was announced. The Kimberley gold was exhausted within a few years but the experienced prospectors it had attracted to the Colony soon began to find payable gold elsewhere. From the Yilgarn and Pilbara fields, which were both proclaimed in 1888, the golden trail led through the Ashburton and Murchison finds in 1890 and 1891, to the fabulous discoveries of Bayley and Ford at Coolgardie in 1892 and of Hannan, Flanagan and O'Shea at Kalgoorlie in 1893. Suddenly Western Australia came to life and began to reduce the lead of the eastern colonies with giant strides.

While the gold rushes were at their height thousands of men streamed towards the 'fields on foot, on bicycles, on camels and horses, across hundreds of miles of arid scrub and desert. Settlements rose and fell almost overnight as rumours of new finds lured diggers from one area to another. Even on the established fields conditions were very tough in the early years, with makeshift huts or tents for shelter, a continual shortage of food and water, high temperatures, choking red dust, and little or no sanitation. The death toll was high from thirst, dysentery and typhoid, but by and large the diggers were law-abiding and there was little of the violence of the Californian gold rushes or the bush-ranging of the Victorian diggings.

In the early days most of the diggers prospected for alluvial gold by dry-blowing, or sank shallow shafts in search of gold-bearing reefs. Each man worked his own small claim, or joined together with a few mates to do so. Alluvial mining of this kind reached its peak in 1897 and then fell away rapidly. As early as 1894 it had become apparent

that the richest deposits lay underground and required expensive machinery and large-scale operations. By the end of the 'nineties the average digger had reluctantly abandoned his hopes of easy wealth and turned to working for wages in deep-shaft mines operated by large companies. The decline of alluvial digging brought to a close the colourful pioneering phase of the gold boom, but the value of gold production continued to rise yearly until 1903 when it reached a record of more than 2 million ounces. The bigger centres such as Kalgoorlie gradually took on a more permanent appearance with hotels, theatres, hospitals and schools being constructed. With the arrival of the wives and children of miners in increasing numbers, the goldfields had begun to settle down.

One indication of the startling impact which the discovery of gold made on the Colony was that the population leapt from 35,000 in 1885 to 101,000 in 1895, and by 1904 had reached 239,000. In other words the number of people in Western Australia increased almost sevenfold in the space of twenty years. Most of the new arrivals came from eastern Australia, which was suffering from a severe depression and a series of prolonged strikes in the early 1890s. Quite a large number migrated direct from Britain and there was a sprinkling from Europe and North America. By 1901 the 'old colonists', those who had been born in Western Australia or had lived there before the gold rushes began, were in a distinct minority in their own Colony.

The gold boom attracted capital as well as people to the Colony; British investors lost confidence in the other Australian colonies in the late nineteenth century but they vied with each other for opportunities to invest in Western Australia. More than 600 companies were floated in London for mining operations in Western Australia and shares changed hands feverishly in London, Perth, and Kalgoorlie, often at inflated prices. Large sums of money were thrown away on speculative or bogus ventures, but the more successful mines returned rich dividends to their shareholders.

From 1890 onwards the Colonial Government boldly embarked on a programme of large-scale developmental works financed by extensive borrowing on the London money market. The Eastern Railway was extended to Southern Cross in 1894 and then on to Coolgardie and Kalgoorlie. At the same time a new South-Western line was constructed and the Government encouraged private investors to build the Great Southern line to Albany and the Midland Railway line into the northern wheat belt. Fremantle Harbour was dredged and moles were built to make it a deepwater port, and ships were encouraged to make Fremantle rather than Albany their main port of call. Not least among the government works, most of which were presided over by C. Y. O'Connor, the Colony's brilliant Engineer-in-Chief, was the Eastern Goldfields Water Scheme. This ambitious project, which was completed in 1903, piped fresh water 350 miles from Mundaring Weir to Kalgoorlie and also supplied the agricultural districts along its route.

Not all of these projects were for the benefit of the goldfields; indeed it was the policy of the Government to channel much of its revenue and loan money into agricultural and pastoral development so that the Colony would have a solid base to fall back on when the gold began to peter out. Thus the Homestead Act of 1893 allowed *bona fide* settlers to take up small holdings free of charge provided they made specified improvements. An Agricultural Bank was founded in 1894 to finance new farmers, and the Bureau of Agriculture was opened to give them advice. Moreover, the Government placed tariffs on imported livestock and foodstuffs to give the farmers further encouragement. With all these incentives and a vastly expanded local market as well, the agricultural industries could scarcely fail to prosper, and despite some bad seasons the acreage under cultivation soared. The pastoral industry experienced a lean period in the early 'nineties but recovered around the turn of the century, with wool remaining a valuable source of export income. Other established industries such as pearling and timber shared in the general prosperity and various forms of light manufacturing industry sprang up around Perth and its metropolitan area.

The changed economic circumstances of the Colony were gradually reflected in its politics. In 1890 a new constitution conferred upon Western Australia the same kind of responsible self-government which the other colonies had enjoyed for thirty years

The old Legislative Council was abolished and in its place there was to be an elected Legislative Assembly of thirty members and a nominated Legislative Council of fifteen members; executive government was to be entrusted to a Premier and Cabinet responsible to the Assembly.

When the new Parliament met in 1891, Sir John Forrest was appointed as the first Premier of Western Australia, a position which he retained for a decade. A native-born Western Australian and a former explorer and Surveyor-General, Forrest gave the Colony the strong leadership it required. There were no political parties at this stage and all members prided themselves on their independence, but Forrest's ministry could always muster the support of a majority in the Assembly.

The miners had little to do with the movement to secure responsible government and after it was granted, the restricted franchise meant that few of them were eligible to vote, and the electoral boundaries left the mining districts practically unrepresented. At first the miners were too preoccupied with the search for gold to pay much attention to their political rights, but as they became dissatisfied with the Government's mining regulations, high tariffs and freight charges, and emphasis on agricultural development, they began to agitate for reform. The protests of the mining community strengthened the hand of the more liberal representatives from metropolitan and agricultural constituencies and by 1901 all adult men and women had been granted the right to vote in elections for the Legislative Assembly, which was increased in size to give reasonable representation to the goldfields. The Legislative Council had been enlarged and made elective, and payment of Members of Parliament introduced. For the time being the old colonial elite remained in control of the government but it was obvious that their days were numbered, for the transfusion of men and ideas which it had received had changed the character of the Colony and brought it much more into line with the rest of Australia.

This trend was at once demonstrated and reinforced by the Colony's reaction to the movement for the federation of the Australian colonies. Forrest himself favoured federation but most of his colleagues and supporters were reluctant to relinquish to a central Government the powers which they had only just received, and feared that Western Australia would suffer from being yoked with areas which were economically more advanced. On the other hand, the miners were solidly in favour of federation, partly because so many of them had come from the eastern colonies and partly because they hoped that a central Government would be more sympathetic to their needs than the local Government was. When the Government refused to allow a referendum on the subject, the goldfields petitioned the British Government for separation from Western Australia and the creation of a new colony which could then federate in its own right. Although Britain did not take this request seriously, the agitation on the goldfields helped to force the Government's hand. A hasty referendum showed a heavy majority in favour of federation, and the Colony of Western Australia was just in time to become an original State of the Australian Commonwealth when it was proclaimed on 1 January 1901.

### CONSOLIDATION 1901-1929

The impetus of the gold rushes naturally carried over into the first decade of the twentieth century; indeed gold production did not reach its peak until 1903. But after the turn of the century gold no longer dominated the Colony as it had done in the 1890s. The mining population dwindled steadily and agriculture took up the slack, just as the Government had hoped and planned. The thirty-year period between federation and the onset of the great depression was for Western Australia a time of consolidation of the gains made during the gold boom, through the development of primary resources.

The incentives to agricultural expansion which Forrest had introduced in the 1890s were continued and supplemented by all the governments of this period. Newton Moore and James Mitchell were perhaps the principal architects of the expansion of the wheat belt but Labour Premiers in John Scaddan and Phillip Collier ably seconded their efforts. All the land along existing railway routes was surveyed and thrown open on generous terms and more than 2,500 miles of new line were constructed, most of it between 1904 and 1919,



to give access to hitherto unsettled areas. Settlers were enabled by the experimental work of the Department of Agriculture (formerly the Bureau of Agriculture) to push out in an easterly direction into districts which earlier generations had considered too dry for farming. Most significant in this respect was the development of two new strains of wheat, Nabawa and Bencubbin, which were particularly suited to local conditions. Through its Agricultural Bank the Government made money available to almost anyone who was prepared to try his hand on the land. Moreover, once the torrent of gold-seekers tapered off the Government began to bring out assisted migrants from Great Britain in considerable numbers. Thirty-three thousand people arrived in this way before the outbreak of the Great War in 1914, with a further 43,000 in the 'twenties, and many of the 'new chums' were turned into farmers.

These policies soon produced results. The acreage under cultivation trebled between 1905 and 1911, and trebled again between 1911 and 1916. The war gave a slight check to development, but in the 'twenties wheat production trebled again to reach a record of 39 million bushels in the 1929-30 season. Long before then Western Australia had been transformed from an importer of grain and flour to a large-scale exporter; indeed wheat had displaced gold and wool as the State's principal export commodity.

Of course not all government policies succeeded as well as this, the most notorious failure being Sir James Mitchell's attempt in the 1920s to found a dairying industry. Under a plan known as the Group Settlement Scheme, British migrants and others were sent in small groups to various spots in the south-west corner of the State and set to work in teams at clearing the heavily-timbered land. Once this had been done each man was allocated a block and equipped with a home and stock. Unfortunately the inexperience of the men, their difficulties in clearing the land, and the poor prices obtained when their farms did begin to produce, meant that many of the 'groupies' gave up in despair. The State did receive some benefits from the scheme but scarcely in proportion to the money outlayed. At the other end of the State the Kimberley beef cattle industry also made little progress, due to transport difficulties and the paucity of markets.

Most other primary industries flourished, however. The increasing popularity of mixed farming in the southern wheat belt kept sheep numbers and wool production on the rise despite a degree of stagnation in the northern pastoral areas. Fruit and vegetable growing expanded, with the Harvey irrigation scheme of 1916 and the introduction of banana growing near Carnarvon in the 'twenties being noteworthy developments. The Australia-wide wave of railway and telegraph construction and general building ensured the prosperity of the timber industry, and pearling reached its peak just before the outbreak of the war.

Secondary industry made much less progress in this period and was almost insignificant in the overall economy of the State. In this respect some of the fears of the anti-federationists may have proved justified, for the Commonwealth Government's twin policies of external tariff protection and interstate free trade made it almost impossible for infant Western Australian industries to compete with established industries in the eastern States. Apart from this the new Commonwealth Parliament and Government did not make much impact on the lives of most Western Australians. Even after the completion in 1917 of the Trans Australian Railway Line, part of Western Australia's price for federating, Melbourne and later Canberra still seemed remote and irrelevant to the citizens of the West, though in fact the financial supremacy of the Commonwealth over the States was growing rapidly in this period.

In the political sphere Western Australia experienced several important developments in the first three decades of the twentieth century. In 1901 Sir John Forrest left State politics to enter the first Federal Cabinet and with his departure the State was plunged into a period of unstable Ministries, which culminated in the formation of a party system. Among the gold seekers of the 1890s there had been some experienced trade unionists, who were largely responsible for organising Western Australia's first Trades and Labour Congress in 1899. This Congress decided upon the formation of a Political Labour Party—which at the State elections of 1901 captured eight seats in the Legislative Assembly.



Only three years later the State had its first taste of Labour rule when a minority government led by Henry Daglish held office for twelve months. The rapid rise of the Labour Party as a parliamentary force compelled the existing independents and liberal and conservative factions to come together to form a Liberal Party, which governed from 1906 until 1911. In the latter year Labour won a resounding electoral victory which enabled it to enjoy five years of office and to experiment with State socialism of a mild kind. Nation-wide controversy about conscription for war service led to a serious split in the Labour Party in 1917, however, and its leader, John Scaddan, and some of his followers joined a Nationalist coalition with the Liberals. For a few years political instability returned, but in the 'twenties the State experienced the regular alternation of Nationalist and Labour Ministries. One complicating factor was the Country Party, which had appeared on the scene in 1914 to represent the interests of the farming community. The Country Party normally supported the Nationalists, but not without periodic tensions and disagreements within the non-Labour camp.

Western Australia loyally backed-up the Commonwealth Government's decision to enter the 1914-1918 war in support of Britain, by providing more volunteers for military service overseas, in proportion to its population, than any other State. The absence of so many able-bodied men caused difficulties in some industries, as did the disruption of shipping to overseas markets, but the war did not otherwise change the tempo of life very much for those who remained in the State.

By 1929, the centenary of its foundation, Perth had grown into quite a large city for, despite the State's reliance on primary industries, more than 50 per cent of its population lived in the metropolitan area. Though there were fresh challenges and fresh opportunities for every generation, the introduction of modern amenities had made Western Australia a more comfortable place to live in than it had been during the pioneering years. Most parts of the State were well supplied with fresh water, and Perth, at least, had electricity. In addition to its railways, the State had an improving network of main roads and almost 40,000 licensed motor vehicles to use them. In the city these were supplemented by a tram service, which had begun around the turn of the century, and several private bus companies. As befitted a State of vast distances and dispersed population, Western Australia was also well to the fore in the development of civil aviation. W.A. Airways, which was founded by Major Norman Brearley in 1921 for operations in the North-West, was Australia's first commercial airline, and by 1929 there was also a regular Perth-Adelaide service. In 1913 the University of Western Australia received its first students, and its establishment crowned a system of free and secular State education which catered for the needs of children all over the State.

In its centenary year of 1929 the State was able to look back over 100 years of progress with a great deal of satisfaction. Few people had any inkling of the dark days which lay just around the corner.

## DEPRESSION AND WAR

The world-wide economic depression of the early 1930s affected Western Australia severely. There were several reasons for this, one of the most important being the State's over-dependence on a few primary industries, which left it vulnerable to fluctuations in prices. Then again, the Government had financed its ambitious development schemes, many of which had not yet begun to pay for themselves, by raising large and frequent overseas loans. When the sources of overseas capital dried up, not only did the public works programme come to an abrupt halt, but the Government had great difficulty in meeting interest payments. To make matters worse, the financial crisis was intensified by a series of poor seasons.

The onset of the depression first attracted attention in Western Australia through a steep fall in the world prices of wheat and wool in 1930. As the situation worsened many farmers were forced off the land, and there was a general withdrawal from the marginal areas which had been brought under cultivation during the optimistic years of prosperity. When the Government cut back its public works, and commercial activity of all kinds

slowed to a walk, thousands of men found themselves out of work. Even those who kept their jobs had to accept wage cuts, the State basic wage **being** slashed from £4 7s. (\$8.70) to £3 9s. (\$6.90) per week. Oddly enough the only industry to benefit from the depression was gold mining. The financial difficulties of the 1930s led to an increased world demand for gold and induced the Commonwealth Government to offer a bonus to producers. This bonus plus a rise in the price of gold caused by devaluation of the currency, brought prosperity back to the goldfields and helped to draw off some of the unemployed.

Elsewhere in the State the picture was a gloomy one. Some men left their families in Perth and went out to the back-blocks in search of work, or lived in government camps whilst employed part-time on relief projects. Thousands of families were dependent on the 'dole' and on hand-outs from charitable organisations to keep them from starvation. Though few people actually starved, malnutrition was common. The widespread dismay at this turn of events resulted in an increase in lawlessness and violence; on many occasions the police were called in to control rowdy demonstrations by the unemployed.

The impotent discontent felt by so many Western Australians was further reflected in a move for the State to secede from the Australian Commonwealth. The old anti-Federal feeling of the 1890s had never entirely died out, and the social and economic dislocation of the 1930s gave it new life. Those who favoured secession argued variously that Western Australia would never be able to develop secondary industry until it could protect its manufacturers from competition from the other States; that the protective tariffs imposed by the Commonwealth for the benefit of manufacturers in the eastern States increased the costs of farm production to a level which was disastrous for a State dependent on primary industry; and that the Commonwealth Government had starved Western Australia of funds. So strong did the secession movement become that the State Government agreed to hold a referendum on the subject. The Commonwealth prepared a booklet and sent a deputation to argue the case for preserving the Federal union, but when the vote was taken, in April 1933, a two-to-one majority of voters favoured secession. A delegation was then dispatched to London to ask the British Parliament to pass legislation making Western Australia independent, only to be told that this was constitutionally impossible. Despite the overwhelming vote a few months earlier, the British rebuff was accepted and the secession movement died away, which lends credence to the view that many voters had realised that secession was impossible but had used the opportunity to express their dissatisfaction with the Commonwealth's failure to cope with the depression.

Apart from the secession episode, State politics were very dull during the 'thirties. Labour had the good fortune to be defeated at the polls in 1930, which meant that a Nationalist-Country Party government under Mitchell held office between 1930 and 1933 and incurred the ill-will of those adversely affected by the depression. On the same day as the secession referendum, Labour won an electoral victory and embarked on what was to prove to be a period of fourteen years unbroken Labour government, under Premiers Collier, Willcock, and Wise. Of course the real responsibility for dealing with the depression lay with the Commonwealth Government, which by this time had assumed far-reaching economic and financial powers. At first the Commonwealth did not handle the task very well. The Scullin Government was torn by internal divisions and handicapped by its lack of a majority in the Senate and a lack of co-operation from the Commonwealth Bank. Not until 1933 was a definite plan adopted for meeting the emergency and by that time conditions had in any case begun to improve. However, the Premiers' Plan of 1933 did assist the recovery by rallying the nation to a united course of action for the first time. By 1935 conditions were considerably better than they had been at the height of the depression, between 1931 and 1933, but even in 1939, on the eve of the World War, it is doubtful whether the State was back to normal.

Australia, and hence Western Australia, entered the war against Germany on 3 September 1939. Volunteers for overseas military service were called for, as they had been twenty-five years before, and once again the response was extraordinarily good. But for the first two years of the war the lives of those who remained at home differed little from peacetime. All this changed dramatically in December 1941, when Japan attacked the

United States base at Pearl Harbour and began her southward advance through South-East Asia and the Pacific in the direction of Australia. For a time it seemed likely that Australia would be invaded. Some towns in the North-West of Western Australia were bombed and the whole State was placed on a war footing. A total black-out was imposed and air-raid shelters were dug all round Perth and in country centres. Most able-bodied men were compulsorily called up for military service and other men and women were directed to work in strategic industries. Food, clothing, and petrol were rationed, and stringent price control introduced, as the nation channelled all its resources into a total war effort.

In response to Japan's entry into the war, Prime Minister Curtin recalled Australian troops from North Africa and the Mediterranean for defence of their homeland, and also turned to the United States for aid. Thousands of American servicemen passed through Australia, and fought side by side with Australians in the Pacific. Fremantle became for a time a major allied naval base for operations in the Indian Ocean and the South-West Pacific. By the end of 1942 the Japanese advance had been halted and the danger of invasion had passed, but the war continued for a further three years before cease-fire agreements were reached in both Europe and the Pacific. By then Western Australians had fought with distinction in practically every theatre of war.

Throughout the war years and the period of reconstruction immediately afterwards, the primary industries on which Western Australia was so dependent were subject to government control. Farmers were told what crops to grow and in what quantity, and their entire output was purchased at fixed prices. This meant that primary producers were protected from the price fluctuations of the 'thirties, at the cost of accepting organised marketing. The shortage of manpower led to further mechanisation and in many cases to improved efficiency. Industries located in the North-West and Kimberley regions suffered most from the war, through the closure of the Wyndham Meatworks and the disruption of transport facilities. Manufacturing industry experienced mixed fortunes. On the one hand the need to produce munitions, small arms, and other military supplies led to a growth in factory production, but on the other hand those factories which could not be converted to wartime uses were deprived of their manpower and forced to close. However, the vigorous programme of reconstruction after the cessation of hostilities gave secondary industry a valuable shot in the arm.

The highly centralised administration of the war and reconstruction years carried Western Australia a stage further towards complete integration with the rest of the Commonwealth. By the 1940s the expanded role of the Commonwealth in both raising and spending revenue, and its monopoly of power in such fields as foreign policy and defence, had made clear its paramountcy over the States. The vast increase in Commonwealth expenditure in Western Australia reconciled most people to this development, and in contrast to the secession movement of the 'thirties, Western Australia offered more support than any other State for further increases in Commonwealth powers at several referendums held in the 'forties.

### A STATE ON THE MARCH

The years since the end of the Second World War have been good ones for Western Australia.

The vigorous immigration policy launched by the Commonwealth at the conclusion of the war received the full support of the State Government, and contributed to a rapid growth in population to reach a total in excess of 836,000 by the Census of 1966. In addition to the British migrants of earlier years, migrants from a wide range of European countries were now included in assisted-passage schemes and absorbed into the community without difficulty.

Most of the traditional primary industries enjoyed continued growth and prosperity. In the early 1950s wool prices soared to six times their pre-war level, due largely to stock-piling by nations involved in the Korean War, and a pastoral boom followed. For a time everyone who could lay their hands on grazing land and stock sought to grow wool, but the boom tapered off and by the 'sixties the wool industry had fallen back on an

expensive research and promotion campaign to stave off the competition from synthetic fibres. Whereas the woolgrowers returned to their pre-war auction system as soon as they were permitted to do so, wheatgrowers agreed to the continuation of organised marketing. The Australian Wheat Board proved very efficient at disposing of large harvests at satisfactory prices, and apart from slight seasonal fluctuations, Western Australian wheat farmers enjoyed a series of good years. Further mechanisation of rural industry and the application of scientific discoveries to combat disease and increase fertility led to improved yields from established farms and the opening up of additional lands. In particular the scientific innovations of the post-war years enabled large areas of 'light' land in the south-east of the State to be brought under cultivation. In addition to many individual holdings in this area, an American syndicate undertook to develop 1½ million acres in the vicinity of Esperance and has made good headway on the project. By 1967 Western Australia boasted of almost 32 million acres of arable land and a record wheat harvest of over 103 million bushels. The production of other cereals, fruit, vegetables, pigs, and other primary produce also made excellent progress.

One of the features of post-war economic planning was a revived interest in northern development. Transport facilities for the northern pastoral industry were improved, firstly by the 'Air Beef' scheme of 1949, and later through substantial government expenditure on beef cattle roads. However, the pastoralists continued to suffer from marketing difficulties and the deterioration of their land through insufficient expenditure on improvements. In 1961 the State, with Commonwealth assistance, embarked on an imaginative scheme of water conservation and irrigation based on the Ord River in the East Kimberley region. By 1962 a diversion dam had been completed and in subsequent years increasing quantities of cotton, sorghum and other tropical crops were produced, though not until 1967 did the Commonwealth agree to a submission by the State in 1964 for funds for the construction of the main dam and irrigation works. The establishment of an American low frequency naval communications station at North West Cape also contributed to the opening up of the North, quite apart from the mineral boom which was perhaps the most exciting development of the 'sixties.

The search for oil in the north of Western Australia was renewed soon after the war and was quickly rewarded by a strike near Exmouth Gulf in 1953. Not until 1966 was oil found again, this time in commercial quantity, at Barrow Island. Several further finds of oil and natural gas were made subsequently, with a possibility of commercial exploitation in the future. However, the most startling progress has been made in the field of iron-ore extraction. In 1960 the Commonwealth Government was persuaded to lift a long-standing embargo on the export of iron ore and this gave a stimulus to exploration and survey which resulted in the location of thousands of millions of tons of ore reserves. With Japan providing a ready market for the ore, and British, American, Japanese and Australian capital available to finance its extraction, developments were very rapid. By 1967 contracts had been approved for the export of 320 million tons of ore, and shipments had well and truly begun; new townships, railways, and port facilities had sprung up in the Mount Goldsworthy, Mount Tom Price, and Mount Newman areas. Moreover, the mineral boom was not confined to iron. Bauxite extraction in the Darling Range was expanding and vast new bauxite reserves were being tested near Gingin and in the Kimberley. And a wild scramble for nickel shares occurred in 1967, following the successful operation of Australia's first nickel mine, at Kambalda, and the discovery of further deposits in the Eastern Goldfields region.

The two post-war decades witnessed significant progress in the field of manufacturing industry, beginning with the opening in 1955 and 1956 of an oil refinery and a steel rolling mill at Kwinana, on Cockburn Sound. By 1968, when a blast furnace was brought into operation, the conversion of the rolling mill into an integrated iron and steel complex was well under way. Other major industrial concerns were attracted to the Cockburn Sound area by the improved transport facilities and favourable terms offered by the Government, and by the late 1960s Western Australia had at last overcome the handicaps which had inhibited industrial development for so long.

Much of the credit for these achievements must be assigned to the State Governments of the period, all of which did their best to promote local industry and draw the attention of the Commonwealth to the needs of the State. In its term of office between 1953 and 1959 the Labour Party presided over the establishment of the oil refinery and steel rolling mill which subsequently became the symbols of a new era in the State's development. The Liberal-Country Party Government, which took over from Labour in 1959 and was still in office in 1970, was even more active in this respect. The Commonwealth was persuaded to make large sums available for beef cattle roads, the Ord River Scheme, and a standard gauge rail link between Perth and the eastern States, in addition to providing for expanding needs in the fields of housing, hospitals, education, transport, and social services. The Liberal-Country Party Government also attracted to the State the vast quantities of private investment capital needed to finance the development of mineral extraction and industrial diversification. Relations between the major political parties remained amicable, whichever was in office, and the differences between them were differences of means rather than ends. In the late 'fifties politics were enlivened by the birth of the Democratic Labor Party, but though this party influenced the outcome of subsequent elections, it was not able to win any seats.

The State's capital city, Perth, and the tempo of life in it, naturally reflected all these developments of the post-war years. The city skyline became higher and more modern as nineteenth century buildings gave way to multi-storeyed concrete and glass structures. The Narrows Bridge, spanning the Swan River just outside Perth, was opened in 1959 and progress was made on a freeway system to cater for increasingly heavy motor traffic. Trams were banished from the city in 1958, and a new Transport Trust took over the responsibility for all metropolitan bus services. The suburbs of Perth sprawled out in many directions to provide accommodation for the growing population. The influence of European migration made itself felt in changes in eating and recreational habits and modes of dress and a slightly more cosmopolitan atmosphere. Something of the characteristic rush and bustle of big cities began to manifest itself, but most Western Australians were determined that the price of progress should not be the erosion of the friendly informality on which they prided themselves.

## CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

### Part 1—Physical Features and Geology

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The development of any country depends on its natural resources and the industry of its people, and there can be few more important investigations for any country than those dealing with the productive capacity of its territory. Natural resources—be they power, mineral, or soil resources—are dependent entirely on the climate, physical features and geology. Looking at the pattern of development of Western Australia we see that for nearly seventy years after the foundation of the Swan River Colony in 1829 agricultural production barely kept pace with the requirements of the small population. The discovery of gold in the 1890s, however, led to a period of rapid expansion, and Western Australia became one of the major gold-producing areas of the world, and with this increase in mining production there was a corresponding expansion of the agricultural and pastoral industries. We are now experiencing an expansion of our secondary industries. Moreover today, with the realisation of the extent of the iron-ore deposits of the State, particularly those of the Hamersley Iron Province, and the discovery of important nickel, bauxite and oil deposits, we have entered another period of major development in this country. In each of these phases of development we can, if we look closely, see the dominating influence of the geological environment.

The nature of the rocks underlying any region is one of the major factors controlling topography, soil, and mineral resources. The latter is self-evident. The soil, on which we are so dependent, was formed by the weathering of the underlying rocks and many of its characters are due to the parent rock material. Much research has been carried out into trace element deficiencies in soils and the application of the new knowledge has produced astounding results as far as land utilisation is concerned. At first sight it would seem fantastic to think of the underlying rocks being in any way responsible for malnutrition of stock, but when it is demonstrated that the malnutrition is due to the lack of some minor element in the fodder which is due to its deficiency in the soil, a deficiency which, in its turn, is due to the absence or relative absence of such elements from the parent rocks from which the soil was derived, the significance of the geological environment becomes evident. Topography which is important in connection with land utilisation, water conservation, power (hydro-electric) resources, and in affecting climate, soil erosion, coastal erosion, transport routes, harbours, and so on is also dependent to a great extent on the nature and structure of the underlying rocks.

It is appropriate therefore that we should consider here the physical features and geology of Western Australia since they, together with the climate, are the primary controls of our soil, mineral, water and power resources, on which our existence and future development are entirely dependent.

#### PHYSICAL FEATURES

In the broadest way this State can be divided into two physical regions: (i) a tableland (the *Great Plateau*) in various stages of dissection occupying the whole of the interior of the State; (ii) a low-lying narrow strip (the *Coastal Plains*) running almost continuously along the coast from near Albany to Broome. A third physical region, the *Scarplands*, separating the Coastal Plains from the Great Plateau, may be distinguished. This,



# MURCHISON RIVER GORGE

This river gorge some 400 miles north of Perth is in Kalbarri National Park which covers an area of 358,000 acres. The gorge is extremely rugged and picturesque and its sheer walls drop some 500 feet from the level of the sandplain.

*By courtesy of  
Mr J. M. Hodges,  
Mosman Park*









#### CLIFFS AT DEEPDENE

Situated some eight miles from Augusta in the South-West, the cliffs at Deepdene are a unique geological formation caused by land subsistence in some bygone era. Nearly 300 feet in height, the rugged limestone cliffs tower above one side of a dell or dene, the face of the cliffs presenting a cross-section of a once huge cave system.

*Photograph by J. E. Gowdy*

although only a narrow belt, is a significant one in the southern part of the State because of its importance in connection with the water conservation schemes on which the metropolitan area, the mining fields in the vicinity of Kalgoorlie, the intervening agricultural and pastoral districts, the irrigation areas on the coastal plains south of Perth, and more recently the wheat belt along the Great Southern Railway, are dependent.

### The Great Plateau

The Great Plateau which occupies more than 90 per cent of the area of the State varies considerably in elevation. In its highest parts (in the North-West) it attains a height of approximately 4,000 feet above sea-level. The greater part is, however, below the 2,000-ft contour and its average elevation is of the order of 1,000 to 1,500 feet above sea-level. Although there is this considerable variation in level the changes are so gradual that the plateau character of the country is not obscured and for the most part it may be regarded as having a vast gently undulating surface. Occasional hills (monadnocks, which are remnants of a previous cycle of erosion) rise above the general surface of the plateau.

The Great Plateau may be conveniently subdivided into an area of exterior drainage (where there are definite rivers which flow to the sea), an area of interior drainage (where such water as flows passes into inland basins), and two areas of no surface drainage but which, if they had drainage, would belong to the exterior drainage system. The area of exterior drainage can be marked out by connecting the source of the streams which flow to the sea and if this is done it will be seen that the width of the exterior drainage belt varies considerably. Thus in the Kimberley and North-West Divisions some of the rivers are hundreds of miles long, but in the south-west part of the State many of them are comparatively short. The areas of no surface drainage are in the north North-West along the Eighty Mile Beach from the mouth of the De Grey River to the north of Broome, and on the Nullarbor Plain in the south-eastern corner of the State. The remainder of the country forms the interior drainage area.

In the area of exterior drainage the dominant feature of the extreme south-west and the northern part of the plateau is a reticulate pattern of rather deeply-incised watercourses. In the southern part of the State these deeply-incised watercourses where they pass from the plateau to the coastal plains are of great significance (as has already been mentioned) in connection with water supply schemes. Elsewhere in the State the marginal portion of the Plateau is drained by rivers that flow to the sea only at times of exceptional rainfall and, speaking in the most general way, have courses at right angles to the coast.

The area of interior drainage is arid and practically riverless. Small creeks run from the higher parts of the country but they either disappear on the extensive flats or reach the shallow basins which are termed salt or 'dry' lakes, the term 'dry' being used since these so-called lakes are free from water except after fairly heavy or long-continued rain. These 'lakes' are generally elongated, narrow, and often winding salt-encrusted flats arranged in long, more or less connected streams. After heavy rain they are covered with a thin layer of water and, after unusually heavy rain, water has been known to flow southwards from one to another of the 'lakes' of a string, except towards the western margin of the plateau where the drainage is to the west. It is evident that these elongated 'lakes' are the remnants of an old river system developed during a more humid period. The salt lakes are of some economic significance since, on the evaporation of the water, common salt and other substances such as gypsum are deposited on the floor of the lake. The gypsum, which crystallises earlier than the common salt, is generally blown from the damp surface of the dried-up lake and deposited as dunes of 'seed gypsum' on the leeward (eastern) side of the lake. These dunes are utilised, for example at Lake Seabrook north of Yellowdine, as a source of gypsum for plasters. Common salt, which separates later, forms a crust on the floor of the lake when it has been completely dried up and such salt deposits are exploited, for example at Lake Lefroy near Widgiemooltha. In a few of the Western Australian salt lakes significant deposits of alunitic clay have been discovered which have been worked as a source of potash.

Over a large portion of the interior drainage part of the Great Plateau there are extensive sand-plain soils overlying a hard laterite ('ironstone') layer, which is of the order of up to fifteen feet in thickness, below which lies an intensely weathered zone from which most of the nutrient elements so important for plant growth have been leached. These more recent geological formations will be discussed in the section of this Part dealing with geology, but we may note here the significance of this lateritic profile (sandy soils near the surface, 'ironstone' a few feet below, and completely kaolinised rocks still deeper) so far as soil fertility is concerned. This lateritic profile is the result of long-continued weathering processes which have resulted in almost complete leaching of the valuable nutrients and as a result soils developed in any part of this profile are generally very poor in character. It is only where erosion has cut through the lateritic profile and still younger soils have been formed by weathering of the underlying rocks that the better soils are found. As has been mentioned, however, with recent studies of trace element deficiencies much can be done with these 'light' soils by the addition of small quantities of suitable trace elements such as copper and molybdenum.

The areas of no surface drainage include the Eucla Division and portions of the Eastern Division of the State. This area is occupied largely by horizontal or nearly horizontal limestones of the Nullarbor Plain and the drainage here is sub-surface in character through subterranean streams and caverns in the limestone. The Nullarbor Plain is an extensive monotonously level plain standing at a height of about 600 feet above sea-level. The Western Australian part of the Nullarbor Plain is bordered to the south by a narrow coastal plain but further east, at the head of the Great Australian Bight, in South Australia, this coastal plain is absent and the southern edge of the Plain is truncated by cliffs which rise almost sheer for 200 to 400 feet above sea-level.

The hills of the Great Plateau are of two kinds, ridged and table-topped. In the southern half of the State the ridged hills, a few of which rise as much as 1,500 feet above their surroundings, are generally elongated in a north-north-west direction, reflecting in their trend the structure of the underlying rocks. The table-topped hills are seldom more than 200 feet above the general level. They are capped with a sub-horizontal layer of laterite ('ironstone') and bounded by low cliffs, in many places undercut, which are known in Western Australia as 'breakaways'. The table-topped hills are relics of erosion of a former laterite-covered peneplain (the *Darling Peneplain*) which was uplifted in Pliocene times to form the Darling Plateau and has subsequently been subjected to erosion under semi-arid conditions. The ridged hills on the other hand are elongated monadnocks which, being cored by resistant rocks such as jasper bars, withstood erosion and so rise above the general level of the remnants of the laterite-covered Darling Plateau.

The Great Plateau slopes down very gradually to the south and west. The downward slope to the south is interrupted by a narrow broken chain of rugged hills, the Stirling and Mount Barren Ranges which rise to heights of from 1,000 to 3,600 feet above sea-level. The western margin of the Plateau is, in the south, formed by the 'Darling Range' which, being merely the dissected margin of the Plateau, is much better called the *Darling Scarp*. This Darling Scarp is clearly defined between latitudes 31° 30' S. and 33° 30' S., i.e. between Moora and Donnybrook, but it is difficult to recognise farther north or south. In the Kimberley Division the mountain ranges are the relics of erosion between the deeply-incised rivers and in this region the highlands of the plateau terminate abruptly along a steep, deeply-indented coastline.

### The Coastal Plains

Bordering the Great Plateau are the Coastal Plains which vary in width. The *Swan Coastal Plain* which extends from the neighbourhood of Perth to near Busselton averages about fifteen miles in width and is divisible into the following belts: a narrow band of moving sand dunes along the coast; a zone, averaging three or four miles wide, of sandy limestone which rises in places to heights of 100 to 200 feet above sea-level; a zone three or four miles wide of loose sand fixed by vegetation; and, abutting against the Scarp which forms the western margin of the Plateau, a zone of clayey soils of about the same width. A strip of low plain extends along the coast at intervals as far north as King

Sound and coastal plains of some width occur near Port Hedland and Exmouth Gulf. A narrow plain fronts the cliffs of the Great Australian Bight for some distance and also occurs in other places along the south coast.

The coastline of Western Australia, some 4,350 miles in length, is broken by capes between Wyndham and Broome, between Port Hedland and Shark Bay, and between Cape Naturaliste and Israelite Bay. The intervening parts are comparatively featureless.

It has only been possible here to briefly outline the principal physical features of Western Australia and for a fuller description of the physiography of this State the reader should consult J. T. Jutson's 'Physiography (Geomorphology) of Western Australia' (*Geol. Surv. West. Aust. Bull.* 95).

## GEOLOGY

More than two-thirds of Western Australia is occupied by the ancient Australian Precambrian Shield which is composed of a complex of igneous, metamorphic and sedimentary rocks formed more than 600 million years ago. Most of our mineral deposits of economic importance, except coal, oil and water and superficial deposits such as lateritic iron ore and bauxite deposits and black sand and other alluvial accumulations, occur in these Precambrian rocks. The remainder of the State is occupied by sedimentary basins in which Palaeozoic and later sediments are developed. It is in these younger sedimentary basins that artesian water, coal, oil and natural gas are likely to occur. Finally there are the still younger superficial deposits—laterites, salt-lake deposits, and soils on which much of the economy of this country depends. It will be convenient therefore, in outlining the geology of the State, to consider it under the three main headings:

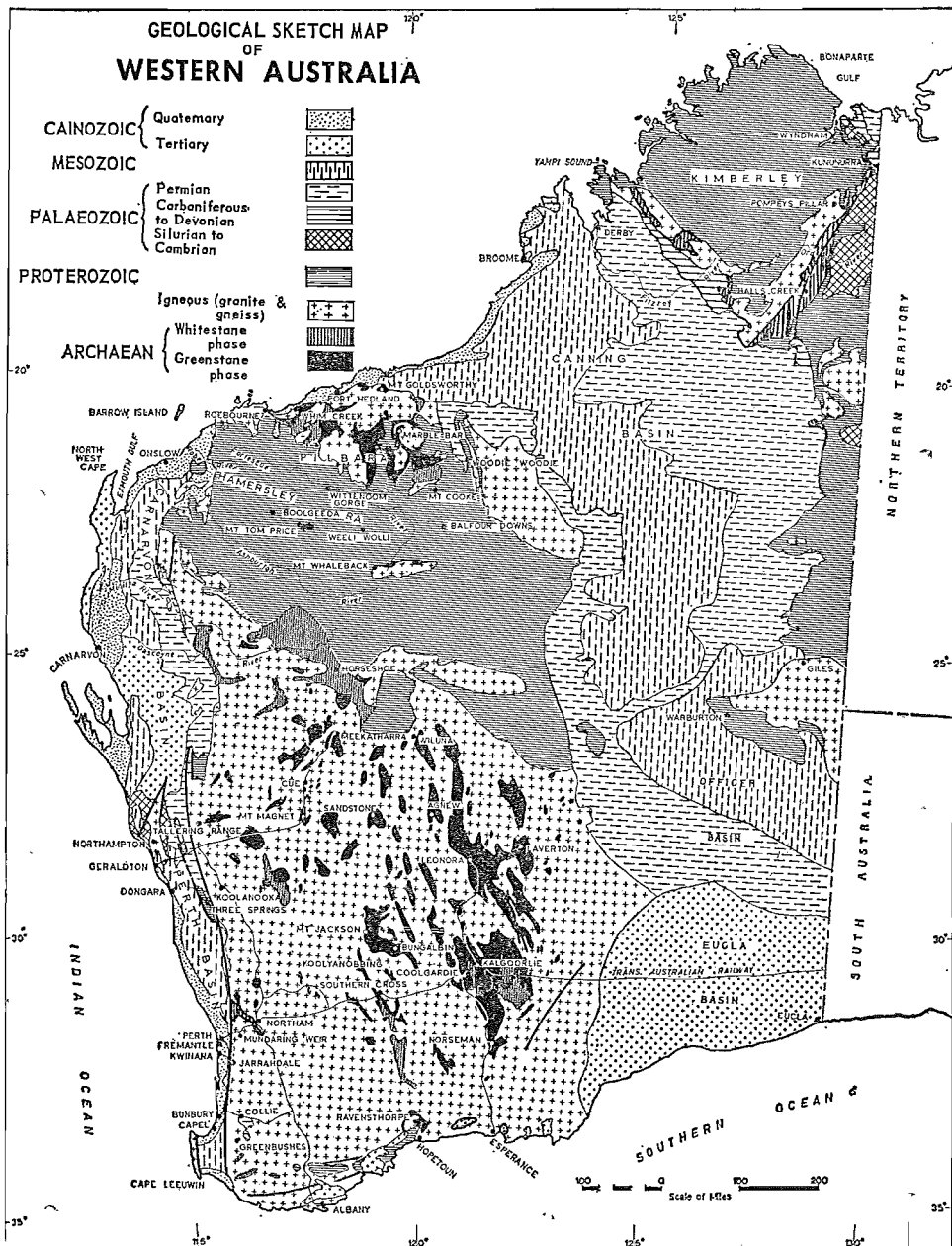
- (a) The Precambrian basement;
- (b) The sedimentary basins;
- (c) The superficial deposits.

The distribution of the solid rocks (omitting superficial deposits) is shown in the accompanying map (see page 20).

### The Precambrian Basement

This includes the Archaean and Proterozoic rocks. The Archaean is a complex of crystalline igneous and metamorphic rocks, dominantly granites and gneisses with minor amounts of basic igneous and schistose metasedimentary formations. In places, particularly in the North-West and Kimberley Divisions, this Archaean complex is overlain unconformably by sedimentary and volcanic rocks of Proterozoic age which do not exhibit the extensive metamorphism so characteristic of the older Archaean complex. The time-boundary between the younger Precambrian (Proterozoic) and older Precambrian (Archaean) is approximately 2,200 million years ago. Within the different areas occupied by the Precambrian rocks the same generalised sequence can be distinguished.

In the Kimberley the oldest rocks are metamorphosed igneous and sedimentary rocks intruded by granite and carrying in places auriferous and base metal ore deposits, and these are overlain by un-metamorphosed sediments with basic igneous intrusives. The Precambrian age of all these rocks is evidenced by the fact that in the East Kimberley they are overlain by sedimentary rocks containing fossils of Cambrian age. This is the only area in Western Australia where the Precambrian age of the rocks of this crystalline complex can definitely be proved on stratigraphical evidence alone. In the southern part of the State we find a similar sequence of crystalline schists with intrusive granites and by lithological correlation (which is not a very sound method) we assume that they are Precambrian although they cannot actually be traced through from the Kimberley. We do know that in the Carnarvon Basin these gneisses, schists and granites are older than the Devonian, which unconformably overlies them, and in the Perth Basin they are older than the Permian. During recent years the Precambrian age of these rocks has been confirmed by actual age determinations based on the decay of radioactive elements which occur in them. This work indicates that the bulk of the massive granitic intrusions of the southern



part of the State crystallised from a molten state some 2,700 million years ago. Some, however, such as those in the vicinity of Albany and along the south coast, are much younger, being emplaced approximately 1,100 million years ago.

The Precambrian sequence in the North-West Division appears to be the most complete that is present in Western Australia and, from oldest to youngest, is as follows.

The *Warrawoona Succession*, which consists mainly of greenstones and green schists which were, prior to the intense folding and metamorphism to which they were subjected after deposition, basaltic lavas and tuffs with interbedded chemically deposited secondary rocks (jaspilites or banded iron formations) in the upper part of the sequence. These jaspilites have been the protore of important iron-ore deposits such as those of Mount Goldsworthy. The Warrawoona Succession is overlain by a succession (the *Mosquito Creek Succession*) of sedimentary rocks which have also been intensely folded and metamorphosed to various types of platy-structured schists, slates and quartzites. Both the Warrawoona and Mosquito Creek Successions are invaded by granitic igneous rocks emplaced approximately 2,700 million years ago and both carry auriferous ore-bodies possibly genetically related to the intrusive granites. End-stage products of these granites are the very coarse-grained pegmatites which are important carriers of tantalum, beryllium, lithium and tin-bearing minerals. All of these rocks in the North-West Division—the Warrawoona and Mosquito Creek Successions and the granites intrusive into them—are therefore of Archaean age and have been called the *Pilbara System*. Still younger sedimentary rocks such as conglomerates, sandstones, shales and banded iron formations with interbedded basic igneous rocks, were deposited unconformably on the highly-folded, granite-intruded Pilbara System. This thick succession consists of a number of distinct groups. The three lower groups (the *Fortescue*, *Hamersley* and *Wyloo Groups*) are of Lower Proterozoic age as the youngest (the Wyloo Group) is intruded by granite aged approximately 1,700 million years. The two upper groups (the *Breshnahan* and *Bangemall Groups*) are of Middle and Upper Proterozoic age respectively. Of these Proterozoic rocks the Hamersley Group is most important economically since most of the iron-ore deposits of the Hamersley and Ophthalmia Ranges occur within, or have been derived from, the thick jaspilites (banded iron formations) within this group. Except in occasional narrow belts marginal to the Archaean blocks, the Proterozoic rocks have not suffered the intense folding that affected the older rocks and consequently they are generally flat-dipping to horizontally bedded un-metamorphosed sediments. Such sediments cover very extensive areas in the North-West (see Geological Map of Western Australia on page 20) and they are similar in many respects to the flat-dipping Proterozoic sediments which cover the plateau country of the North Kimberley. The final episode in the Precambrian history of the North-West was the intrusion of dolerite dykes and sills into all of the earlier rocks.

Coming to the southern half of the State we find a similar sequence to that in the North-West. In the part of the Precambrian Shield extending south of latitude 26° S. the oldest rocks that are recognised are the greenstones of the various gold-mining fields which occur in comparatively narrow belts elongated in a general NNW. direction (see map, page 20). These greenstones, which are for the most part metamorphosed basaltic lavas, contain interbedded ultrabasic lavas and jaspilites and are overlain by metamorphosed sedimentary rocks (generally referred to as whitestones). This System of rocks is the *Kalgoorlie-Yilgarn System*. From the mining point of view it is most important since the auriferous ore deposits of the main mining fields are confined to it, as are the known nickel deposits. It also contains, in the jaspilites, important iron-ore deposits such as those of Koolyanobbing in the Yilgarn. It appears to be the equivalent of the Pilbara System of the North-West. After the formation of the Kalgoorlie-Yilgarn rocks they were intensely compressed into tightly closed folds with NNW.-trending axes. During this period of intense earth-movement alkaline solutions permeated the older rocks, converting them into granitic gneisses which occupy the bulk of the southern half of Western Australia. Subsequently granite magma was intruded as in the North-West. This completes the Archaean sequence. The Proterozoic is represented by a narrow strip of slightly altered sedimentary rocks along the Darling Scarp and the metasedimentary rocks of the

east-west Stirling and Mount Barren Ranges along the south coast. Proterozoic igneous activity is represented by Early Proterozoic layered complexes and Late Proterozoic basic dykes. The former, aged 2,420 million years, take the form of basic-ultrabasic layered complexes, such as the large east-west dykes of the Norseman-Laverton greenstone belt which have some prospects for the occurrence of nickel and chrome deposits. The latter are dolerite dykes which, like those in the North-West, intruded all of the Precambrian rocks about 550 million years ago. They occur throughout the Precambrian shield but are most abundant near its western margin.

Putting together the information available throughout the State, we conclude that the oldest rocks found in Western Australia belong to the older part of the Archaean Era. It is a great succession of rocks, generally much metamorphosed, which is called the Kalgoorlie-Yilgarn System in the southern part of the State and the Pilbara System in the North-West region. In the early part of Kalgoorlie-Yilgarn times there was much volcanic activity which took the form of eruptions of ultrabasic, basic and intermediate lavas, tuffs, and breccias. These were penetrated, shortly after their extrusion, by intrusions from the same magma; similar events must be occurring now in the interior of great volcanic masses like Etna or Hawaii. In later Kalgoorlie-Yilgarn times, the dominant process was sedimentation, so that the earlier volcanic rocks, with the minor associated bands of sediment, became overlain by a great thickness of sandy and clayey sediments. These sediments must have been derived from some land mass composed of rocks of pre-Kalgoorlie-Yilgarn age but this, possibly the oldest of all rock assemblages, has apparently not yet been found in Australia or any other part of the World.

After the accumulation of the Kalgoorlie-Yilgarn System came a period of intense earth-movement during which the rocks were, in most places, closely folded and regionally metamorphosed. The folding was accompanied by widespread granitic intrusions, some of which consolidated into primary gneisses whereas others soaked into the Kalgoorlie-Yilgarn rocks, penetrating them along bedding planes, joints, and other fractures, and so forming hybrid granitic gneisses by granitisation.

Where they were not affected by this First Granite Invasion, the volcanic rocks of the Kalgoorlie-Yilgarn System were regionally metamorphosed, in some places very strongly into dark-coloured schists, in others only very slightly. Similarly, the sedimentary rocks of the Kalgoorlie-Yilgarn System, where they have escaped the first granite invasion, *i.e.* have not been granitised, are in some places but slightly regionally metamorphosed, in others they are converted into various types of schist and quartzite.

All the Archaean rocks described above were invaded by the 'Younger' Granite, which, unlike the 'Older' Granite, formed well-defined intrusions many of which are stocks, though smaller offshoots from the same magma, in the form of 'porphyry dykes,' occur at nearly every mining centre. These events occurred after the folding but before Proterozoic times. Any of the Archaean rocks in Western Australia may contain ore-bodies yielding gold and other minerals of economic value. It seems likely that many of these ore-deposits were formed at the time of the Second Granite Invasion which, from radioactive age determination studies, occurred about 2,700 million years ago. Important iron-ore deposits occur in the Archaean rocks at many localities, for example at Mount Goldsworthy in the Pilbara, Talling Peak in the Yalgoo Goldfield, and Koolyanobbing, Bungabin and many other localities in the North Yilgarn. These are all banded ironstone deposits which are interbedded with the basaltic lavas and sedimentary rocks of early Archaean age. In many places there are important manganese deposits associated with these banded iron formations. A rich nickel deposit discovered in ultrabasic Archaean rocks at Kambalda near Kalgoorlie in 1966, has now become an important source of nickel concentrates. Base metal ore deposits, such as nickel, cobalt and chromium, are generally associated with ultrabasic igneous rocks. Ultrabasic rocks are intrusive into the older Archaean volcanic and metasedimentary rocks of the Kalgoorlie-Yilgarn System in the country between Norseman and Laverton and, following the discovery of important nickel deposits at Kambalda and Scotia in the vicinity of Kalgoorlie and Mount Windarra near Laverton, these areas are being carefully examined to assess their prospects for base metal deposits.

Finally, in Proterozoic times we had the deposition, under shallow-water conditions, of conglomerates, sandstones, shales and banded iron formations and another period of volcanic activity yielding basaltic lava flows. Other than in a few narrow belts these rocks have not suffered the intense earth movements which affected the older rocks, and so are practically un-metamorphosed. Important blue asbestos deposits in these rocks have been exploited at Wittenoom Gorge in the Hamersley Range of the West Pilbara. The asbestos deposits occur in banded ironstone formations which also contain large iron-ore deposits. The well-known iron-ore deposits of Cockatoo and Koolan Islands in Yampi Sound, which have been exploited for many years, are metasedimentary deposits of Late Proterozoic age. Although the Proterozoic rocks cover extensive areas in the northern parts of the State they have largely been stripped off the southern half by erosion. The final episode in the Precambrian history of this State was the widespread intrusion of dolerite dykes approximately 550 million years ago. Small lead and copper deposits are closely associated with these dolerite intrusions in the Northampton Mining Field, where the discovery of a lead-copper deposit at Waneranooka led, in 1842, to the first metal mining operations in Australia.

### The Sedimentary Basins

There are five major post-Proterozoic sedimentary basins in Western Australia—the *Bonaparte Gulf Basin* in the north-east part of the Kimberley Division extending into the Northern Territory, the *Canning Basin* of the West Kimberley, the *Carnarvon Basin* of the North-West, the *Perth Basin* extending from lat. 29° S. to lat. 33° S. and the *Eucla Basin* occupied by the Nullarbor Plain. Large areas of the Central Division are covered by sediments of the *Amadeus Basin* of Central Australia and the shallow *Officer Basin*. In addition to these major basins there are smaller basins such as that at Collie and scattered areas where sediments, which are dominantly lacustrine in nature, have been deposited. In these sedimentary areas we find sediments ranging from Lower Palaeozoic to Pleistocene in age. These sediments of Palaeozoic and later age are, as a rule, less disturbed than those of Precambrian times and many are abundantly fossiliferous. Therefore, there is a sure means of correlating formations even in widely separated places, and so our knowledge of the history of these sedimentary areas is more detailed than in the much altered, highly folded, unfossiliferous Precambrian rocks of the basement.

Apart from the superficial deposits the economic significance of these basins is confined to their possibilities for the occurrence of artesian water, coal, oil and natural gas. A prime requisite for the occurrence of artesian and sub-artesian water is the occurrence of interbedded strata of varying porosity and permeability. These conditions are met in a number of the sedimentary basins in Western Australia and the development of the pastoral industry in the arid or semi-arid parts of these basins has been largely dependent on the occurrence of artesian water. In the metropolitan area, artesian bores are an important source of water supplies. Coal deposits are also confined to areas of sedimentary rocks and occur in the Permian rocks of two of the minor basins, namely the *Collie* and the *Irwin River Basins*, and in the Lower Jurassic sediments of the Perth Basin (at Enaabba, where a seam 100 feet thick has been found at a depth of 6,000 feet in a borehole sunk in search for oil, and is indicated in shallow shot-holes in the Hill River area). Up to 1966 the coal deposits of the lacustrine Permian beds of the Collie Basin constituted the only power source in Western Australia, since oil of commercial significance had only then been proved and the gently undulating topography combined with low rainfall make the hydro-electric resources insignificant. So far as oil is concerned the first occurrence of flow oil in Australia was encountered in Rough Range Bore No. 1, in the Carnarvon Basin, late in 1953. This discovery of flow oil resulted in an increase in the rate of geological exploration of all the major sedimentary basins. The results of extensive geological mapping, geophysical surveys and exploratory drilling have to date been rather disappointing. However, a commercial field was proved at Barrow Island off the north-west coast in 1966. Other oil occurrences have been located at various localities in the Perth Basin, e.g. in the vicinity of Dongara and this indicates the presence of suitable source material and conditions for oil formation and preservation. Moreover, oil search drilling operations have located some widely-spaced finds of natural gas in considerable



quantities, which may ultimately prove to be of commercial significance. The possibilities, therefore, of locating other commercial oilfields in the Carnarvon, Canning and Perth Basins are by no means exhausted and the search is being actively continued both on land and offshore in the continental shelf area.

A detailed description of the sedimentary formations of different ages, from the Cambrian to the Recent, in the various sedimentary basins has been set down in 'The Stratigraphy of Western Australia' (*Journal Geological Society of Australia*, volume 4, part 2, pp. 1-161, 1958). It is proposed here merely to indicate the main features of the various basins.

The *Bonaparte Gulf Basin*, in the East Kimberley, extends into the Northern Territory and offshore below the Timor Sea. As already mentioned, this and the nearby Ord Basin are the only basins in Western Australia where rocks of proved Cambrian age are exposed. On Western Australian territory the Cambrian rocks extend as a narrow belt along the interstate border between lat. 16° 15' S. and lat. 18° 30' S., reaching westward from the border for 15 to 75 miles. The Cambrian consists of basalts at the base of the sequence, overlain by Middle Cambrian fossiliferous limestones, shales and sandstones. There is a small development of sandstones which are considered to be of Lower Ordovician age, following which there is a big time gap and the next youngest formations are sandstones and limestones of Upper Devonian and Lower Carboniferous age. Upper Carboniferous and Lower Permian formations are absent, the next marine transgression being in the Middle Permian when a thick sequence of conglomerates, sandstones, and limestones was deposited. The only other sedimentary rocks in this basin are freshwater sediments (siltstones, marls and cherts containing freshwater fossils) of late Tertiary age.

The *Canning Basin* (formerly named the Desert Artesian Basin), in the West Kimberley, extends from the coast between Derby and the De Grey River in a south-easterly direction almost to the 128° meridian (see map, page 20). The north-east or Fitzroy part of this basin consists of a comparatively narrow and shallow section (the Lennard Shelf) flanking the Precambrian land mass to the north, and a deep trough (the Fitzroy Trough) estimated, from aeromagnetic geophysical surveys, to contain a thickness of the order of 20,000 feet of sedimentary strata ranging in age from Ordovician to Triassic. It was in this area that bores seeking oil were first drilled in Western Australia, following the discovery in 1919 of traces of oil in a water bore on Gogo Station. The larger Canning Desert portion, the South Canning Basin, is covered by a relatively thin Mesozoic and Permian sequence, but geophysical work followed by some deep drilling has indicated that there are deep depressions in this area, the deepest of which is the Kidson Sub-basin, which has a basement approximately 20,000 feet below the surface.

The oldest Palaeozoic sediments in the Fitzroy portion of the basin are richly fossiliferous limestones of Ordovician age outcropping near Price's Creek. These are overlain by Devonian reef limestones, sandstones and conglomerates, followed by Carboniferous sandy limestones. These in turn are followed by a thick Permian sequence of sandstones (of marine glacial origin deposited from floating ice), fossiliferous calcareous shales and limestones, and Upper Permian fossiliferous ferruginous siltstones and sandstones. All of these formations dip gently in a general south-westerly direction towards the centre of the basin but these regional dips are interrupted by local folding. Shale and sandstone beds of Triassic age occur in the Fitzroy Trough section of the basin. The youngest rocks in this area are igneous intrusions in the form of intrusive sheets, dykes, and volcanic necks which have been found intruding all rocks of the sequence from the Precambrian granitic basement to the youngest sediments (Triassic) present. These igneous rocks, from direct geological evidence, are of post-Triassic age, and radioactive age determinations made in 1959 indicate that they were intruded 180 million years ago (*i.e.* in Jurassic times). This is one of the two areas in the whole of Western Australia where post-Cambrian igneous activity is known. It is interesting to note the occurrence of a small lead deposit in Devonian limestone at Narlarla in the Napier Range. This is the *only* primary metallic ore deposit of post-Proterozoic age known in Western Australia and it may be genetically related to the Jurassic igneous activity or may have been deposited from sea water by organisms during Devonian times.

In the Canning Desert section of the basin the Palaeozoic rocks are not well exposed and the greater part of this portion of the basin (where not obscured by superficial unconsolidated sands) is occupied by Mesozoic sediments ranging in age from Lower Jurassic to Lower Cretaceous. The deep depressions in the floor of the South Canning Basin are filled with Palaeozoic sediments as proved by the first deep oil test well (Kidson No. 1) which was abandoned at 14,539 feet in Lower Ordovician limestone. There is no evidence in the entire basin of any marine transgression after Lower Cretaceous times.

The basin extends some 200 miles offshore to the coral islands of the Rowley Shoals where some wells have been sunk in the search for oil.

The *Carnarvon Basin* (formerly called the North-West Artesian Basin) has been the most intensively studied of the major sedimentary basins in Western Australia. It extends along the west coast from Onslow near the mouth of the Ashburton River as far south as the mouth of the Murchison River (see map, page 20), the maximum width of the basin being 125 miles at the latitude of Carnarvon. In this basin the eastern portion up to fifty miles wide is occupied by a thick sequence of marine Palaeozoic sedimentary rocks ranging in age from Middle Devonian to Upper Middle Permian, all of which have a westerly regional dip. The estimated maximum thicknesses of the Palaeozoic strata are:

Permian	....	....	....	13,175 feet
Carboniferous	....	....	....	2,510 feet
Devonian	....	....	....	5,120 feet

This Palaeozoic sequence which consists of fossiliferous Devonian limestones and sandstones, Carboniferous limestones and Permian marine glacial beds, limestones, sandstones, and shales, is almost entirely marine in origin. In the Carnarvon Basin we have the only wholly marine Permian sequence in Australia, and without doubt *one of the thickest marine Permian sequences in the World.*

No rocks of Silurian age were known from the western half of the Australian continent until 1957 when a bore sunk by West Australian Petroleum Pty. Ltd. at Dirk Hartogs Island in Shark Bay encountered limestones of Silurian age underlain by sandstones which are now correlated with the reddish sandstones which outcrop in the lower reaches of the Murchison River.

To the west the Permian rocks are unconformably overlain by Cretaceous sandstones, shales, marls and limestones attaining a total thickness of 2,000 feet. It is the basal formation, the *Birdrong Sandstone*, of the Cretaceous sequence that is the oil sand encountered in Rough Range Bore No. 1. Another Cretaceous formation, the Windalia Formation, is one of the important oil reservoirs of the Barrow Island Oilfield. The Cretaceous rocks outcrop in a north-south belt averaging fifty miles wide between the Palaeozoic and Precambrian rocks on the east and the Tertiary limestones to the west. The only other Mesozoic formation exposed at the surface in this basin is a Jurassic sandstone twenty-five feet thick. However, a deep well (Cape Range No. 2) drilled in search of oil at Exmouth Gulf, after passing through the base of the Cretaceous at 3,707 feet, entered the Lower Jurassic which extended to the depth of 15,169 feet at which the bore was discontinued, thus proving a thickness of at least 11,462 feet of Lower Jurassic strata in this area. It is apparent that there is a marked thickening of the Mesozoic formations from east to west in this area. The westernmost belt of the Carnarvon Basin is occupied by Tertiary strata, mainly limestones, which are well exposed in the Rough and Cape Ranges of the Exmouth Gulf area. These limestones, which range from Lower Miocene to Pliocene in age, total 1,200 feet in thickness and are discontinuously overlain by Pleistocene and Recent beds approximately 450 feet thick. Marine Tertiary sediments which are so well developed along the western margin of the basin extend as a thin discontinuous formation unconformably over the Permian beds of the eastern part of the basin, indicating that in Upper Eocene times the sea transgressed practically the whole of the Carnarvon Basin.

The sedimentary rocks of the Carnarvon Basin were affected by earth movements at various times. Even the youngest of the Tertiary rocks have been thrown into gentle folds which are significant so far as the search for oil is concerned because, in addition

to having suitable conditions for the formation and preservation of oil, suitable structures are necessary for its concentration into local areas (oil 'pools'). So far as structure is concerned, the general picture of the Carnarvon Basin is the gentle westerly regional dip of the Palaeozoic sediments of the eastern half of the basin and the gentle dome and basin folding of the western half.

The *Perth Basin* (formerly called the Coastal Plain Artesian Basin) is a narrow elongated basin on the western border of Western Australia extending from Geraldton in the north to Cape Leeuwin in the south. At Geraldton it is thirty miles wide and is flanked both to the west and east by Precambrian crystalline rocks (mainly gneisses). The maximum width of the basin is approximately fifty miles at Watheroo and it narrows again to the south being approximately thirty miles wide in the sunkland between Busselton and Augusta. At this southern end it is again flanked both to the east and west by Precambrian rocks. The surface of the basin is mostly covered by Recent sands but occasional outcrops of rocks as old as the Permian occur in places. The only evidence available regarding the structure, thickness and age of the sediments in the basin is that provided by geophysical surveys, some deep bores sunk in the search for oil and a number of water bores up to 2,400 feet deep in the metropolitan area. Gravity surveys indicate that there is a very considerable thickness of sediments, perhaps exceeding 30,000 feet, and it is probable that in this basin we have a complete succession from the Younger Proterozoic (*Cardup Group*), which outcrops along the Darling Scarp, to the Recent sands. Other than the Proterozoic of the Darling Scarp, the oldest sediments exposed are the gently folded Permian marine sediments of the *Eradu* and *Irwin River Basins* at the north end of the main basin. The Permian sediments of the Irwin River area have a total thickness of 4,000 feet and vary from marine glacial beds at the base (as in the Carnarvon and Canning Basins) through fossiliferous marine shales and limestones to lacustrine sandy sediments with coal seams in the upper part of the sequence. Marine and continental Jurassic limestones and sandstones outcrop east of Geraldton and Jurassic beds, overlain by Cretaceous chalks and greensands, occur near Gingin and Dandaragan. In the southern part of the Perth Basin the oldest rocks exposed (if we except the Permian of the separate minor *Collie Basin* which is situated well to the east of the Darling Scarp in a glacially-gouged trough) are the Cretaceous *Donnybrook Sandstones*.

In the vicinity of Perth, artesian bores to a maximum depth of 2,400 feet expose a sequence varying from Jurassic sandstone at depth, through Cretaceous and Eocene shales. The *King's Park Shale* of Eocene (older Tertiary) age is overlain by Pleistocene aeolian sandstones of the *Coastal Limestone Formation*, the base of which is approximately 100 feet below sea-level. There is therefore a big gap in the succession here between the Eocene and Pleistocene. Many boreholes have been sunk in the north-central part of the basin in the course of oil search operations. Boreholes near the coast (at Jurien Bay and Beagle Ridge) struck Precambrian crystalline basement rocks at comparatively shallow depths of 3,360 feet and 4,860 feet. The sediments thicken further inland, as evidenced by the increasing depth to the Precambrian basement in Cadda No. 1 (9,002 feet), Woolmulla No. 1 (9,218 feet) and Arrowsmith No. 1 (11,220 feet). Very thick sedimentary sequences have been disclosed by Eneabba Bore No. 1 (which bottomed in Lower Triassic at 13,712 feet) and Gingin No. 1 (in Lower Jurassic at 14,908 feet). Some deep wells have been drilled to the south of Perth, namely Pinjarra No. 1 which bottomed in Upper Triassic sandstone at 15,001 feet; in the far south (near the south coast), Sue No. 1 which encountered Precambrian granulites at 10,021 feet; near Perth, Cockburn No. 1 which was abandoned at 10,020 feet in Lower Jurassic sandstone; Whicher No. 1, near Busselton, which reached a depth of 15,266 feet in Permian sandstone before being abandoned; and Blackwood No. 1, abandoned at 10,939 feet in Permian sediments. The first offshore well in the Perth Basin (Quinns No. 1), spudded in on 10 October 1968 at a location approximately twenty miles north of Rottnest Island, was drilled to a depth of 7,248 feet without finding hydrocarbons. Some oil was found in a second offshore well (Gage Roads No. 1), drilled to a depth of 12,009 feet, approximately nine miles north-west of Rottnest Island.

Oil search operations in the Perth Basin have led to the discovery of significant oil and gas in the vicinity of Dongara near the northern end of the Basin and gas at Gingin, about fifty miles north of Perth. These discoveries have now been proved as gas fields. The other materials of economic significance in the Basin are coal, artesian water, limestone from the Pleistocene Coastal Limestone which is used as a source of lime and as building stone ('Cottesloe Stone'), and sand for building material. In addition, the Coastal Limestone contains picturesque caves of tourist attraction such as those of Yanchep, Yallingup and Margaret River.

The only evidence of igneous activity in the Basin is the Cretaceous basalt of the sunland between Bunbury and Cape Gosselin on the south coast.

Very little is known about the structure of this basin. It is bounded to the east by a large fault or monoclinical fold. The evidence available indicates that the main structural character of the deeper part is a regional dip to the east (of 15° to 20°) traversed by north-south trending faults with down-throws to the west. There is an unconformity (Upper Jurassic to Lower Cretaceous) at a depth of approximately 2,000 feet above which the Cretaceous and Tertiary sediments are almost horizontal.

The *Eucla Basin* occupying the Nullarbor Plain, in the south-eastern corner of the State is occupied at the surface by marine fossiliferous Middle Tertiary (Miocene) limestones with a marginal belt of Lower Tertiary (Eocene) limestones. The Tertiary rocks lie on sandstones and shales of probable Cretaceous age, which in turn overlie the Precambrian crystalline rocks. Little is known of the details of the stratigraphy and structure of the Eucla Basin since the beds are very flat-lying and have only been penetrated by water bores in a few places such as Madura near the coast and Loongana on the Trans-Australian Railway. The Madura bore is artesian but bores along the Trans-Australian Railway have only yielded sub-artesian water (i.e. the water will rise under pressure only part of the way to the surface). The oil prospects of this basin are poor because of the comparatively small thickness (2,000 feet) of the sediments and the absence of suitable folded structures to form oil traps.

The *Collie Coal Basin*. Of the minor basins and isolated occurrences of post-Proterozoic sediments, Collie, since it is the only operating coalfield in Western Australia, is the only one which will be considered here. It is situated approximately 100 miles SSE. from Perth, and has an area of about 100 square miles. Actually it is made up of two basins separated by a sub-surface granitic ridge. It is composed of sandstones and shales with interbedded coal seams and is surrounded by Precambrian rocks. The coal measures, of Permian age, are of the order of 2,000 feet in thickness of which approximately 130 feet is coal. The actual contact between the Permian coal measures and the Precambrian granitic basement has nowhere been seen at the surface but has been encountered in deep drill holes in various parts of the Basin. Such drill holes reveal that Permian mudstone containing granite pebbles lies on an ice-planed surface of the Precambrian granitic rocks. This suggests that the Collie Basin, formerly considered to be a block of the Permian downfaulted into the Precambrian basement, is actually a glacially-gouged trough formed by terrestrial glaciation in the Permian and since filled with Permian lacustrine sediments. Coal occurs at three horizons and the seams, which average six feet in thickness, persist over fairly long distances. From the associated plant fossils these coal measures appear to be comparable in age with those of the upper part of the Permian sequence at the Irwin River near the northern end of the Perth Basin.

### The Superficial Deposits

Over a great part of the State fresh rock outcrops are comparatively sparse. Most of the country is covered by highly-weathered rocks, laterite, drift sand, soils, and, in the salt lake country, by thin evaporite deposits.

*Laterite*. In the southern half of the State the remnants of the Darling Plateau are covered by a thin layer up to ten or fifteen feet thick of a reddish-brown rock composed of spherical pebbles tightly or loosely cemented together by a lighter-coloured earthy

matrix. This material in its poorly consolidated state is popularly referred to as 'iron-stone gravel' and when strongly cemented as 'ironstone'. This rock, called laterite, although it covers large areas, is purely superficial and wells or bores sunk in it pass within a few feet into highly weathered country rock which may extend down for distances up to 100 feet before encountering fresh unweathered rock. This laterite crust and the underlying highly weathered country rock were developed on a gently undulating surface during a period of warmer, more humid, climatic conditions. These tropical conditions probably existed in Late Tertiary (Pliocene) times when a great part of Western Australia had been reduced by long-continued erosion to a peneplain lying close to sea-level, or soon after, when this peneplain had been uplifted to form the *Darling Plateau*. This uplift, judged by the elevation of the laterite-capped hills and the occurrence of fossiliferous marine Eocene sediments 900 feet above sea-level at Norseman, was of the order of 1,000 feet. On the Great Plateau, remnants of this Darling Plateau are evidenced by the table-topped hills so characteristic of much of the Plateau country. The significance of the laterite profile and the soils developed from the laterite and associated weathered rocks has already been mentioned. Economically, the laterite is important for road-making materials and in a few places (such as Wundowie) as an iron ore. The main constituents of the laterite are the insoluble products of intense rock weathering—iron oxide, alumina and silica. In many places the alumina content is sufficiently high to call them bauxites. Bauxites are the main source of aluminium, and the bauxitic laterites of the Jarrahdale area in the Darling Range near Perth are being exploited as aluminium ore.

The mid-Tertiary land surface of the southern half of Western Australia on which the laterite profile was developed at a time when this country was subjected to a tropical climate extends into the northern part of the State. In the Hamersley Iron Province of the North-West Division this old land surface truncated the Lower Proterozoic banded iron formations of the Hamersley Group. At and below this old land surface, (the *Hamersley Surface*) which can be traced without tectonic break from sea-level to elevations of 4,000 feet, there was a secondary concentration of the iron of the Lower Proterozoic rocks resulting in extensive rich iron-ore deposits which make this area one of the richest iron provinces in the World.

In the far south-west of the State sub-surface hard pan formations consisting of ferruginous sandstone are a potential source of low-grade iron ore.

*Soils and drift sands.* Western Australia, an area of 975,920 square miles extending from lat. 13° 44' S. to lat. 35° 08' S., although having little variety in its broad physical features, has very considerable variation in climates from the tropical areas of summer rainfall in the north through a central and inland province of low rainfall to the temperate areas of winter rainfall in the south. Moreover, throughout this enormous area there is very considerable variation in the nature of the country rocks. The nature of the soils developed is dependent on these two factors—climate and parent rock—so it will be apparent that there will be very considerable variation in the soils over this extensive area. L. J. H. Teakle has recognised the following major soil zones of Western Australia:

1. Grey, yellow and red podsolised, or leached, soils of the temperate sclerophyll forests.
2. Red-brown earths of the eucalyptus-acacia woodlands.
3. Grey and brown calcareous, solonised soils of the low rainfall eucalyptus woodlands—('mallee' soil zone of Prescott).
4. Red and brown acidic soils of the acacia semi-desert scrub—mulga, etc.
5. Brown acidic soils of the spinifex semi-desert steppes of the North-West.
6. Pinkish-brown calcareous soils of the Nullarbor Plain desert shrub steppes.
7. Pinkish-brown calcareous soils of the acacia semi-desert scrub, mallee and salt bush-blue bush zone.

8. Brown soils of the tropical woodlands, savannahs and grasslands.
9. Red sands of the central desert sandhills—spinifex with desert acacias, desert gums and mallees (*Eucalyptus spp.*).

Each of these major soil zones may be subdivided into one or more soil regions and the reader is referred to a paper 'A Regional Classification of the Soils of Western Australia, by L. J. H. Teakle (*Jour. Roy. Soc. West. Aust. XXIV*, pp. 123-95) for details concerning the soil characteristics of these various zones and regions.

There are considerable areas of Western Australia covered by drift sand which may be in the form of parallel red sand dunes or, in the southern part of the State, extensive sandy plains. The latter have been generally considered to be residual from the weathering of granite. These sand plains are often underlain by lateritic material and they probably represent the leached zone of the laterite profile. The youngest of the drift sand deposits are the coastal sand dunes.

Coastal sand deposits are of considerable economic importance. At various places along the south and west coasts there are beach sand deposits in which there is a natural concentration of heavy minerals such as zircon, monazite, xenotime, rutile and ilmenite. Such deposits are at present being exploited at Capel and Bunbury for their ilmenite content, which is valuable because of its low chrome content. The other heavy minerals such as zircon, monazite and xenotime are also being exported overseas.

*Salt lake deposits.* These, together with the coastal sand deposits, represent the youngest of the geological formations developed—indeed they are in course of formation at the present time. They are evaporite deposits resulting from the evaporation of lake waters in the areas of internal drainage. Soluble salts produced by rock weathering are leached out by rain and running water and transported by streams to these lakes. During the long dry summers most of these lakes dry up and the soluble salts are deposited, yielding accumulations of gypsum and common salt. In a few of these inland lakes hydrated potassium aluminium sulphate (alunite), which is a valuable source of potash for fertilisers, has been formed but its actual mode of formation has not yet been satisfactorily explained.

Valuable potash reserves occur at Lake MacLeod north of Carnarvon. This 800-square mile coastal lake contains brines saturating the mud of the lake floor which are rich in potash salts which are the last salts to crystallise on the evaporation of sea water. It is expected that these deposits, which will be Australia's only domestic source of potash, will come into production in 1971 and, within a few years, produce the equivalent of Australia's present consumption of 200,000 tons per annum.

Solar salt (sodium chloride) is at present being produced at several localities in the North-West, such as Port Hedland, Exmouth Gulf and Shark Bay, where a combination of low-lying flat topography and shallow marine embayments (such as Useless Loop in Shark Bay) with hot dry climate resulting in high evaporation are the ideal conditions for crystallisation of sea water salts. The production of such solar salt is expected to amount to 2 million tons annually.

## Conclusion

From the foregoing summary of the geology of Western Australia we see that, although nowhere do we find the complete geological succession, somewhere in the State there are deposits representative of every Period. The geological history of Western Australia begins with the basaltic igneous activity of the Early Archaeozoic some 3,000 million years ago, followed by sedimentation, intense mountain building activity and associated granitisation and granite intrusions. In post-Archaeozoic times there is a record of sedimentation throughout all the main geological periods. Igneous activity ceased in the Lower Palaeozoic and only re-occurred during the late Mesozoic, yielding the basaltic lavas of the far South-West and the volcanic rocks of the West Kimberley. By mid-Tertiary times much of Western Australia had been reduced by denudation to a gently undulating peneplain land surface on which, under tropical climatic conditions, there

was an extensive development of laterite which in places constitutes valuable bauxite and iron-ore deposits. Geological processes are continuing and at the present day rocks and soils are still in the process of formation.

### **Current Geological Investigations in Western Australia**

While much is known about the geology and mineral resources of Western Australia, there is still much to be learned. The foregoing summary account of the geology of Western Australia is based on work carried out in the past, which has increased in tempo during the last decade because of the discovery of important oil and mineral deposits.

At present, geological work in Western Australia is being carried out by the following bodies.

1. The Geological Survey Branch of the Department of Mines of Western Australia, which is engaged in regional geological mapping, special investigations of varied character concerned with groundwater resources, mineral deposits, and engineering geology problems, and problems arising daily, which require geological advice to the public. The major results of the Geological Survey's operations are published annually in the Annual Report of the Department of Mines of Western Australia, in Bulletins issued at irregular intervals and in four-mile scale geological maps with explanatory notes, which are also issued at irregular intervals.
2. The Geology Department of the University of Western Australia. Research projects are undertaken by members of staff and research students, varying from mapping and petrological-mineralogical projects concerned with the Precambrian rocks which make up the greater part of the State, through palaeontological work on rocks from the various sedimentary basins, to studies of present-day marine sedimentation. The results of such investigations are published in various scientific periodicals, both in Australia and overseas.
3. Oil exploration companies. Such companies have carried out geological and geophysical surveys of the various sedimentary basins and some offshore areas, and are presently engaged in deep-drilling programmes. Attention is now being given to drilling in the offshore continental shelf areas of the Canning and Perth Basins.
4. Mineral exploration companies. Following the discovery of important nickel deposits at Kambalda and Scotia near Kalgoorlie, and, subsequently, at Mount Windarra near Laverton, many Australian and overseas exploration companies are engaged in base metal exploration, particularly in the Norseman to Laverton belt of Precambrian greenstones.

The continued efforts of these institutions and exploration companies are daily adding much to our knowledge of the geology of the western third of the Australian continent.

### **Seismicity of Western Australia**

It had been generally considered that Western Australia was a stable block free of seismic activity in the form of earthquakes but this idea was shattered by the occurrence, on 14 October 1968, of a major earthquake centred near Meckering, eighty-four miles inland from Perth. This earthquake completely wrecked the town and most farm houses in the vicinity; alarmed numerous residents of Perth; caused minor damage to many buildings in the Perth Metropolitan Area; was felt within a radius of about 400 miles; and made people realise that Western Australia was not as stable as was previously thought. Other earthquakes, such as the Meeberrie earthquake of 29 April 1941 (the most severe earthquake yet recorded on the Australian continent), have tended to pass without much notice since they either occurred in less densely populated areas or were of low intensity. Records show (according to Everingham in a report of the Bureau of Mineral Resources, Geology and Geophysics, *Seismicity of Western Australia*) that

there were forty-seven Western Australian earthquakes of local magnitude greater than 3.5 (Richter scale) recorded in the period August 1959 to June 1965, and 210 less intense earthquakes during the same period. The distribution to the end of 1967 of earthquakes of magnitude exceeding 4.1, plus the Meckering shocks of 1968, are shown on the accompanying map which indicates also the year of occurrence of the more severe earthquakes (those of magnitude greater than 6.0).

Western Australian earthquake data collected since 1904 suggest that the seismically active regions have been : (a) in the vicinity of Broome ; (b) in the Marble Bar-Port Hedland area ; (c) west of Carnarvon, near the continental margin ; (d) in an area 200 miles south-east of Carnarvon ; and (e) in an area extending south-east from Yandanooka through the wheat belt to Cape Riche. Activity to a lesser degree has occurred in other localities, such as to the west of Cape Leeuwin and about eighty miles south-south-east of Wyndham. Earth tremors have often been recorded at major mining towns, such as Cue and Kalgoorlie, but these are believed to be due to rock bursts caused by mining operations, rather than to normal seismic activity. Other than these 'man-made' tremors, very few earthquakes have been recorded from the central part of the Precambrian Shield of crystalline rocks. In 1967 two earthquakes with epicentres about 350 miles north-east of Kalgoorlie occurred on 21 November 1967 (magnitude 4.0) and 14 December 1967 (magnitude 4.1). These are of interest because they were located near the epicentre of a small shock in 1965 which was the first known within the extensive aseismic stable Shield area in Western Australia. With little exception the seismically active areas are relatively close to the margins of the Shield and the adjoining sea floor.

Most of the recorded minor earthquakes have originated in the Yandanooka-Cape Riche belt of country about 300 miles long by thirty miles wide, which lies just within the western margin of the Shield. Indeed, all except five of the 210 recorded minor earthquakes of the period 1959 to 1965 originated in this narrow belt which is parallel to the regional geological structure of the older Precambrian rocks of the southern half of Western Australia. It was in this belt, at Meckering, that the severe earthquake of 14 October 1968 had its origin.

The Meckering earthquake, which resulted from the formation of a north-south striking, flat easterly-dipping fault, has yielded much valuable information about the stresses in the most active seismic area in Western Australia, namely the Yandanooka-Cape Riche Lineament. Faults are fractures in the Earth's crust on which relative movement of the adjoining blocks takes place, resulting in a shock which is transmitted through the rocks for considerable distances. It is this disturbance which constitutes the earthquake. The fault which caused the Meckering earthquake resulted in the formation of a fault scarp along which uplift of up to five feet occurred on the eastern side, and in addition, the western block moved north approximately three feet with respect to the eastern block. Instrumental readings indicate that the local magnitude was 6.9 (Richter scale) and the focus of the earthquake was near the eastern margin of Meckering townsite at a depth of less than six miles. The main earthquake at 10.59 a.m. (Western Standard Time) on 14 October 1968 was preceded by a few foreshocks and was followed by many aftershocks, the intensity and frequency of which has steadily diminished. The movement on the Meckering Fault was the result of compressional forces, indicating that the Australian Precambrian Shield is in a state of compression rather than tension, as formerly thought.

The major fault structure of Western Australia is the Darling Fault which forms the western margin of the Precambrian Shield and the eastern margin of the Perth Basin. It extends meridionally from the south coast for some 600 miles. It is considered that the total west block downward movement on this fault has been of the order of 30,000 to 40,000 feet. In spite of the fact that there is a major negative gravity anomaly over the Perth Basin causing this region to be isostatically unbalanced, no earthquakes have been recorded which originated on this fault—indeed there is no geological evidence of any movement on the Darling Fault for at least 1 million years. The October 1968 movement on the Meckering Fault indicates that the Precambrian Shield is in a state of compression and would support a hypothesis that the Darling Fault, instead of being a westerly-dipping



structure with downthrow to the west, is more probably an easterly-dipping compression structure with the east (continental) block thrust up over the Perth Basin. This would explain the observed stability of the Perth Basin which should, according to the gravity measurements, be a very unstable area. Instead of rising, as it should because of the major negative gravity anomaly, it is being held down by the overthrust continental block.

As has been indicated, the Meckering earthquake has drawn attention to the possibility of earthquake occurrence in south Western Australia and for the necessity to consider this factor when designing large structures. Calculations have been made from records during the period 1960 to 1969 to give an approximate idea of the order of earthquake frequency in the south-west corner of the State. These have indicated that an earthquake of magnitude greater than 6.5 would occur once every fifty years, and one of magnitude greater than 5.5 every ten years, but these figures are thought to be pessimistic because records kept since 1840 suggest a lower average frequency and the data used for these calculations are swamped by the foreshocks and aftershocks of the Meckering earthquake.

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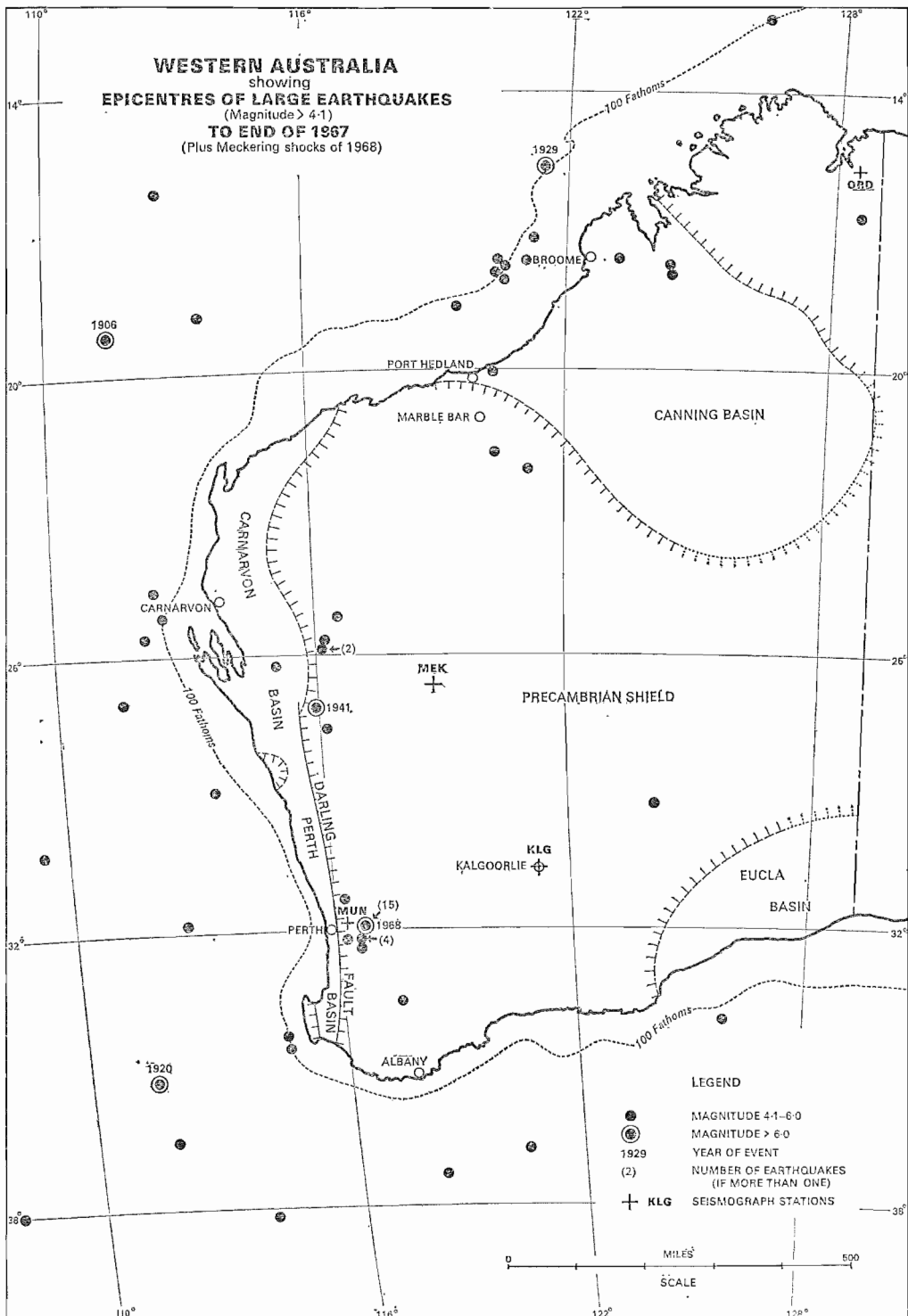
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## *Chapter II—continued*

### **Part 2—Climate and Meteorology<sup>(1)</sup>**

*(Contributed by the Western Australian Regional Office of the Bureau of Meteorology)*

Western Australia is the largest State in the Commonwealth, extending from latitude 13° 44' S. to 35° 08' S., and from longitude 113° 09' E. to 129° E. It stretches a distance of about 1,500 miles in a north-south direction and about 1,000 miles west-east. A little more than one-third of the State lies within the tropics, while the remainder extends southward to the temperate zone.

Because of its large size and its latitudinal position, Western Australia has entirely different climates in its northern and southern parts, while in the central regions there is a gradual change from the tropical climate of the north to the typical Mediterranean climate of the south.

Most of the State is a plateau between 1,000 and 2,000 feet above mean sea-level and there are no outstanding mountain ranges. Where the edge of the plateau forms the Darling Range along the southern part of the west coast, it exerts a marked influence on the rainfall, causing a rapid increase from the coastal plain to the higher land. Elsewhere the effect of topography is less marked and its main influence is seen in the general decrease of rainfall with increasing distance from the coast.

#### **PRESSURE SYSTEMS**

Weather during the year is controlled largely by the movement of the anticyclonic belt (high pressure systems with anti-clockwise winds), which lies in an east-west direction across the continent for about six months of the year.

In winter this system moves northward, bringing clear skies with fine sunny days and easterly winds to the tropics. With this northward movement, westerly winds on the southern side of the anticyclones extend over the southern part of the State, bringing with them cool cloudy weather and rain. In mid-winter the northern fringe of the 'Roaring Forties' extends to Western Australia and there are frequent westerly gales in the south coastal belt.

These westerly winds are maintained by a series of depressions (low pressure systems with clockwise winds), which move eastward well south of the Western Australian coast, and others which originate in the Indian Ocean and move south-eastward past Cape Leeuwin. The extent to which westerlies affect the State depends largely on the intensity and the position of these depressions.

Towards the end of winter the anticyclonic belt moves southward, and the westerlies are confined more to the lower south-west and the south coastal districts. By summer the anticyclonic belt has moved so far south that its axis is off the south coast and easterly winds prevail over most of the State.

During this summer period the midday sun is at a high elevation in the tropics and the continual heating leads to the development of a monsoonal depression over this region. Wind circulation round this system causes easterlies on its southern or inland side, but in the coastal districts north-east from Onslow, and in parts of the Kimberley, westerlies prevail. Winds in both the north and the south of the State are then in the opposite direction to those prevailing during the winter.

As the sun moves northward again the anticyclonic belt follows it. The monsoonal depression over the tropics dissipates and westerlies again gradually extend northward to the southern part of the State.

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<sup>(1)</sup> See *Appendix* for additional information contained in earlier issues of the Year Book.

During the northern 'Wet' season (from about December to March), occasional cyclones, known locally as 'willy willys', bring strong winds and rain to the tropics. They originate generally in the Timor Sea or off the north-west coast and often move first in a south-westerly direction parallel to the coast and later in a south-easterly direction.

They frequently move inland between Broome and Onslow but occasionally travel further westward before curving to the south-east and moving inland over the west coast. Others fade out at sea without ever crossing the coast. Those that move inland usually commence to dissipate soon after crossing the coast, but occasionally they move right across the State, passing into the Southern Ocean and moving off towards Tasmania.

These storms are often extremely violent and have on occasions almost completely wrecked towns on the north-west coast, while a cyclone which struck a pearling fleet off the Eighty Mile Beach in 1887 caused the loss of twenty-two vessels and 140 lives.

However, despite the damage which they cause, the storms are of great benefit to the pastoral regions on account of the heavy and widespread rain which generally accompanies them. The heaviest fall ever recorded in one day in Western Australia, 29·41 inches, was received at Whim Creek from a cyclone in 1898.

### RAINFALL

The moist rain-bearing winds in this State are in general from a westerly direction. The easterlies, having come from the dry inland parts of Australia, usually bring fine weather and clear skies.

Because of this the highest rainfall occurs in the winter months in the south of the State, and in the summer months in the north. In between these areas there is a gradual change from one rainfall regime to the other.

From the map on page 39, which shows the wettest six-monthly period of the year, it can be seen that the summer rainfall area extends southward from the Kimberley to the Trans-Australian Railway, where there is a rapid change to the winter rainfall regime of the south coast. However, the difference between summer and winter totals decreases southward, and the southern part of this region is one of almost uniform average rainfall.

Proceeding northward from the winter rainfall area of the south-west of the State, the wet period occurs earlier during the year. Across a belt Carnarvon-Menzies-Eucla, there is a more rapid change, and this belt divides the winter rainfall area from that which receives most of its rain in the first six months of the year. Further north, the change is more gradual but continuous and in the Kimberley most of the year's rainfall is received in the summer months which, in the southern parts of the State, are the driest of the year.

The mean annual rainfall for the State is shown on the map on page 40 and on the map inside the back cover of the book.

The following table shows the average rainfall and number of wet days, the highest and lowest monthly totals, and the highest daily fall for various centres.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS  
(Stations are arranged from north to south in three groups: Coastal, Wheat Belt and Other Inland)

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>COASTAL</b>													
<i>Wyndham</i> (23 feet†)—													
Rainfall—Average (points)	749	649	470	109	30	20	17	2	8	45	185	434	2,718
Highest (points)	2,824	2,058	1,758	2,027	347	473	524	84	136	334	558	1,150	5,634
Lowest (points)	51	54	0	0	0	0	0	0	0	0	3	28	1,438
Highest one day (points) ....	1,212	590	1,250	1,732	247	445	338	42	136	225	335	434	1,732
Wet days—Average number	13	12	9	3	1	1	1	0	0	2	6	10	58
<i>Broome</i> (37 feet†)—													
Rainfall—Average (points)	410	559	299	128	137	66	35	8	7	5	34	115	1,803
Highest (points)	3,256	2,358	2,360	1,019	700	973	283	374	86	48	1,095	1,449	4,307
Lowest (points)	11	6	0	0	0	0	0	0	0	0	0	0	544
Highest one day (points) ....	1,400	1,191	1,062	714	470	563	216	147	82	28	553	680	1,400
Wet days—Average number	10	10	7	3	2	2	2	0	1	1	1	5	44

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<i>COASTAL—continued</i>													
<i>Port Hedland (25 feet)†—</i>													
Rainfall —Average (points)	193	365	176	74	130	58	46	17	4	6	9	86	1,164
Highest (points)	1,969	1,432	1,716	1,096	873	696	384	584	99	129	336	1,023	4,013
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	125
Highest one day (points) .....	600	955	1,113	469	638	560	185	364	85	127	304	900	1,113
Wet days—Average number	4	6	4	2	3	2	2	1	1	1	0	1	27
<i>Roebourne (40 feet)†—</i>													
Rainfall —Average (points)	247	240	283	124	116	102	56	21	6	3	7	38	1,243
Highest (points)	1,448	1,278	1,607	2,173	887	734	530	385	158	120	120	507	4,173
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	13
Highest one day (points) .....	911	666	1,032	1,144	660	325	530	172	90	115	66	383	1,144
Wet days—Average number	3	4	4	2	2	2	1	1	0	0	0	2	21
<i>Onslow (14 feet)†—</i>													
Rainfall —Average (points)	106	291	305	26	186	203	87	18	2	2	15	11	1,252
Highest (points)	1,028	2,122	1,633	1,100	1,020	908	872	421	49	61	237	241	4,265
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	57
Highest one day (points) .....	932	1,079	1,238	617	937	436	355	251	27	29	117	198	1,238
Wet days—Average number	2	4	3	2	4	4	4	2	1	0	1	1	28
<i>Carnarvon (15 feet)†—</i>													
Rainfall —Average (points)	21	95	65	31	168	198	168	70	18	17	8	3	862
Highest (points)	619	719	520	647	800	865	593	355	96	198	75	483	2,536
Lowest (points)	0	0	0	0	0	5	6	0	0	0	0	0	266
Highest one day (points) .....	358	441	470	197	410	475	322	193	63	104	28	469	475
Wet days—Average number	2	3	2	3	6	7	7	5	2	3	1	1	42
<i>Geraldton (13 feet)†—</i>													
Rainfall —Average (points)	33	51	38	107	278	423	406	268	105	60	21	28	1,818
Highest (points)	379	517	666	457	1,292	1,292	958	952	412	429	157	230	3,365
Lowest (points)	0	0	0	0	0	132	70	33	0	0	0	0	902
Highest one day (points) .....	310	324	369	270	307	430	201	365	169	280	140	202	430
Wet days—Average number	2	3	3	6	10	14	16	12	9	7	4	2	88
<i>Perth—Observatory (51 ft)†—</i>													
Rainfall —Average (points)	32	44	81	181	497	722	688	557	319	216	82	59	3,478
Highest (points)	217	655	571	585	1,213	1,875	1,673	1,253	784	787	278	317	5,267
Lowest (points)	0	0	0	0	77	216	242	46	34	15	0	0	2,000
Highest one day (points) .....	174	343	303	262	300	390	300	291	182	173	154	184	390
Wet days—Average number	3	3	4	8	14	17	18	18	14	12	6	4	121
<i>Bunbury (17 feet)†—</i>													
Rainfall —Average (points)	38	47	93	183	515	732	690	501	325	216	97	54	3,491
Highest (points)	340	405	330	690	1,047	1,620	1,640	1,187	793	769	331	316	5,374
Lowest (points)	0	0	0	0	38	287	194	82	0	26	0	0	1,904
Highest one day (points) .....	222	338	258	240	317	472	372	263	227	154	205	104	472
Wet days—Average number	3	3	4	7	14	18	18	17	14	11	6	4	119
<i>Albany (41 feet)†—</i>													
Rainfall —Average (points)	94	90	160	286	485	540	573	511	408	318	157	126	3,748
Highest (points)	854	635	653	921	1,140	1,152	1,060	1,124	796	736	671	459	5,484
Lowest (points)	4	0	10	19	174	159	205	198	80	56	19	6	2,507
Highest one day (points) .....	345	226	353	226	408	285	240	443	312	184	307	323	443
Wet days—Average number	7	7	10	13	18	20	20	20	18	16	11	9	169
<i>Esperance (14 feet)†—</i>													
Rainfall —Average (points)	68	79	107	181	322	401	417	375	280	217	114	92	2,653
Highest (points)	524	471	491	691	705	1,076	945	727	687	574	571	320	3,625
Lowest (points)	0	0	0	8	80	109	93	75	42	52	0	0	1,724
Highest one day (points) .....	274	154	175	496	205	416	218	232	455	179	200	279	496
Wet days—Average number	5	5	7	9	14	16	17	16	14	12	7	6	128
<i>Eucla (290 feet)†—</i>													
Rainfall —Average (points)	60	70	79	106	122	105	92	90	71	76	64	53	988
Highest (points)	375	680	501	807	349	608	245	323	333	291	448	455	1,705
Lowest (points)	0	0	0	0	0	7	11	7	2	2	0	0	442
Highest one day (points) .....	213	453	202	163	130	128	103	122	157	130	110	192	453
Wet days—Average number	3	4	5	8	9	10	10	9	8	7	6	4	83

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

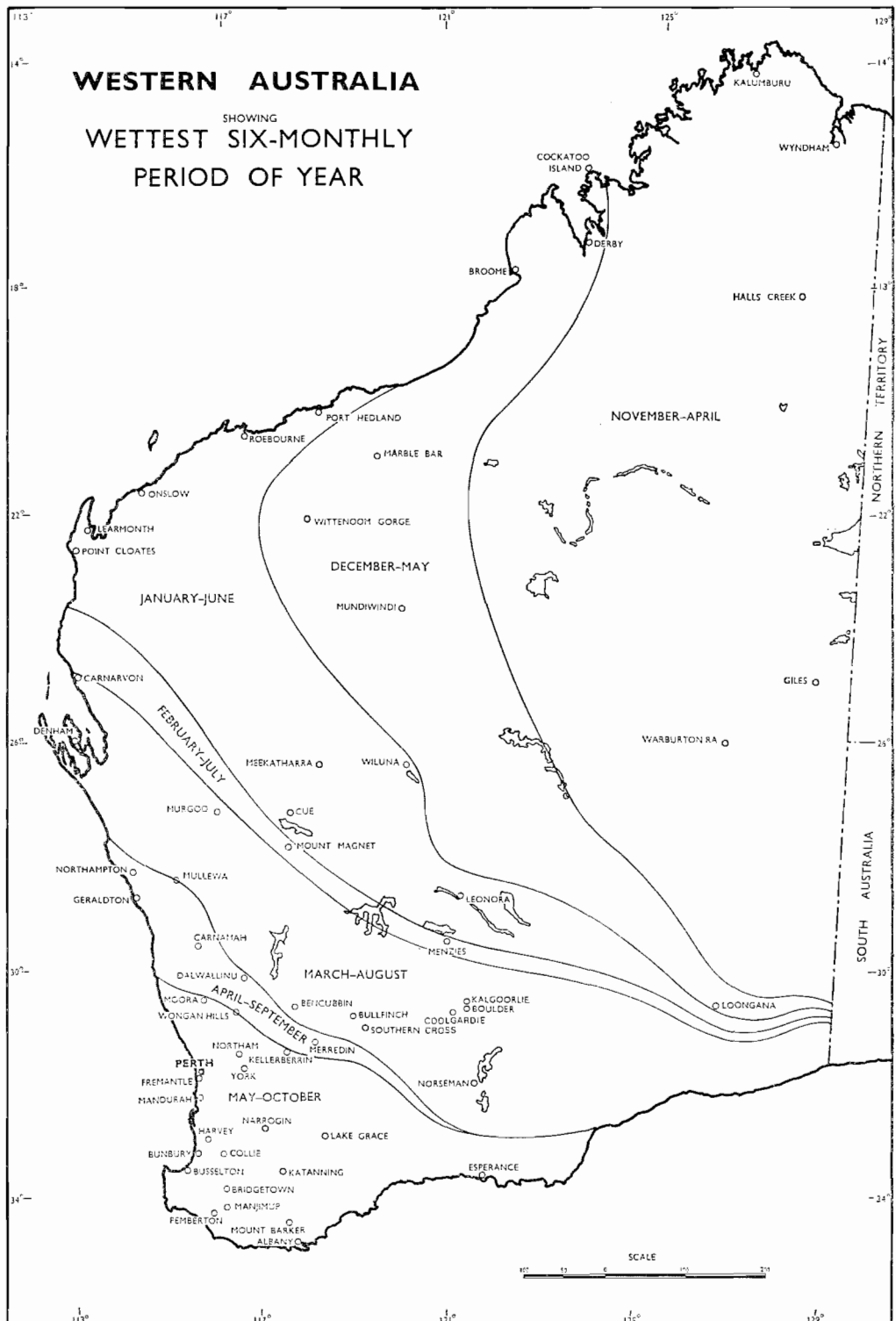
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>WHEAT BELT</b>													
<i>Carnamah</i> (879 feet) —													
Rainfall —Average (points)	42	54	84	85	200	312	283	219	117	68	42	35	1,541
Highest (points)	404	405	551	422	668	910	742	757	332	288	357	222	3,078
Lowest (points)	0	0	0	0	6	83	53	48	2	0	0	0	837
Highest one day (points) .....	380	226	299	350	290	241	170	260	129	157	280	197	380
Wet days—Average number	2	2	2	4	9	12	13	11	8	6	2	2	73
<i>Wongan Hills</i> (906 feet) —													
Rainfall —Average (points)	43	49	86	88	209	302	282	207	107	72	40	39	1,524
Highest (points)	274	435	653	320	739	866	687	515	285	239	171	230	2,657
Lowest (points)	0	0	0	0	1	87	32	33	6	0	0	0	629
Highest one day (points) .....	273	314	320	243	250	274	161	135	146	141	117	225	320
Wet days—Average number	1	1	2	4	8	11	13	10	7	5	2	1	65
<i>Kellerberrin</i> (820 feet) —													
Rainfall —Average (points)	38	50	89	80	170	224	220	167	104	76	42	55	1,315
Highest (points)	282	499	599	396	419	603	483	392	289	303	266	265	2,602
Lowest (points)	0	0	0	0	0	59	41	10	8	1	0	0	678
Highest one day (points) .....	198	426	404	228	159	184	150	158	93	168	129	224	426
Wet days—Average number	2	2	3	5	8	12	13	10	8	6	3	2	74
<i>Southern Cross</i> (1,170 feet) —													
Rainfall —Average (points)	47	72	94	80	130	143	149	116	73	60	51	45	1,060
Highest (points)	389	538	665	504	469	371	420	346	418	312	293	282	2,264
Lowest (points)	0	0	0	0	0	20	42	2	0	0	0	0	464
Highest one day (points) .....	172	331	240	172	217	131	143	120	205	216	200	156	331
Wet days—Average number	3	2	4	4	7	8	9	9	6	5	3	2	62
<i>Merredin</i> (1,046 feet) —													
Rainfall —Average (points)	39	50	87	89	161	203	216	156	101	77	51	54	1,284
Highest (points)	220	315	634	447	518	516	498	340	337	296	271	364	2,219
Lowest (points)	0	0	0	0	5	23	34	4	0	3	0	0	512
Highest one day (points) .....	157	260	325	235	194	166	181	132	176	105	144	191	325
Wet days—Average number	2	3	3	4	8	11	12	10	7	6	3	2	71
<i>Northam</i> (490 feet) —													
Rainfall —Average (points)	33	46	76	89	226	327	340	249	142	96	42	36	1,702
Highest (points)	219	747	744	332	555	916	871	669	506	395	162	259	2,798
Lowest (points)	0	0	0	0	4	40	77	12	10	0	0	0	764
Highest one day (points) .....	148	455	497	294	257	226	220	150	180	185	126	195	497
Wet days—Average number	2	2	3	5	10	14	15	13	10	7	3	2	86
<i>Wandering</i> (1,100 feet) —													
Rainfall —Average (points)	37	54	91	130	324	474	472	378	257	181	70	60	2,528
Highest (points)	222	961	481	476	766	1,450	1,274	1,062	757	508	254	416	4,135
Lowest (points)	0	0	0	0	42	99	133	54	33	11	0	0	1,168
Highest one day (points) .....	192	543	410	199	240	336	273	210	180	168	190	250	543
Wet days—Average number	3	3	5	8	13	17	19	17	13	11	6	4	119
<i>Narrogin</i> (1,114 feet) —													
Rainfall —Average (points)	39	65	86	117	255	357	364	277	190	132	56	51	1,989
Highest (points)	270	934	502	495	599	1,182	957	729	478	483	290	373	2,917
Lowest (points)	0	0	0	0	38	99	98	62	26	6	0	0	1,056
Highest one day (points) .....	197	454	450	249	269	280	320	165	144	139	150	196	454
Wet days—Average number	2	2	4	6	11	13	15	14	11	8	4	3	93
<i>Katanning</i> (1,016 feet) —													
Rainfall —Average (points)	42	61	94	122	245	306	308	243	182	144	71	67	1,885
Highest (points)	341	884	525	638	583	844	685	681	484	450	355	293	3,077
Lowest (points)	0	0	0	2	28	84	86	51	14	17	0	0	1,072
Highest one day (points) .....	253	495	271	417	233	276	182	142	145	198	165	216	495
Wet days—Average number	3	3	5	7	12	15	17	15	13	10	5	4	109
<b>OTHER INLAND</b>													
<i>Halls Creek</i> (1,225 feet) —													
Rainfall —Average (points)	528	463	156	76	51	22	33	10	9	52	120	251	1,771
Highest (points)	2,274	1,467	1,451	646	659	344	316	221	207	408	789	905	4,202
Lowest (points)	20	11	0	0	0	0	0	0	0	0	0	12	844
Highest one day (points) .....	831	510	685	578	241	143	189	205	123	142	198	471	831
Wet days—Average number	12	12	6	3	2	1	1	0	1	2	6	9	55

† Height above mean sea-level.

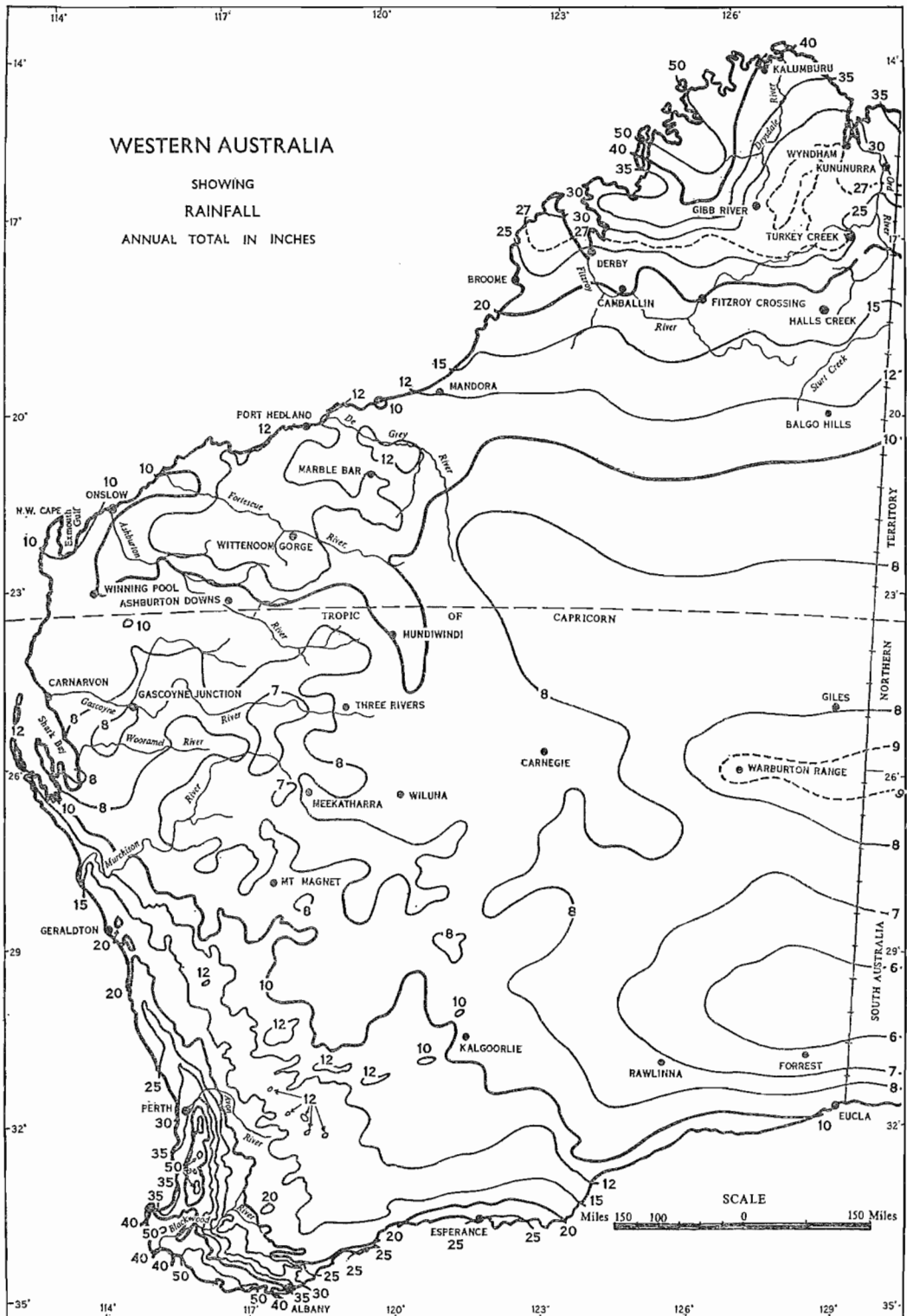
RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>OTHER INLAND—<i>continued</i></b>													
<b>Marble Bar (595 feet)†—</b>													
Rainfall —Average (points)	285	290	214	83	89	93	52	21	4	18	35	135	1,319
Highest (points)	1,219	924	1,530	947	588	625	527	135	95	458	242	957	2,920
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	280
Highest one day (points) .....	574	470	1,200	536	274	412	247	125	95	332	238	592	1,200
Wet days—Average number	7	6	4	2	2	2	2	1	0	0	2	4	32
<b>Mundiwindi (1,840 feet)†—</b>													
Rainfall —Average (points)	177	181	193	86	84	76	33	31	14	32	42	107	1,056
Highest (points)	1,262	1,278	1,051	543	477	445	276	209	240	368	280	628	3,211
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	103
Highest one day (points) .....	274	278	688	223	219	159	168	152	135	210	227	450	688
Wet days—Average number	6	6	5	3	3	3	2	2	1	1	3	4	39
<b>Warburton Range (1,515 feet)†—</b>													
Rainfall —Average (points)	83	100	106	101	85	76	49	52	15	45	71	108	891
Highest (points)	697	587	710	435	357	388	211	284	965	188	328	375	2,719
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	137
Highest one day (points) .....	230	307	398	302	163	164	87	138	95	70	186	239	398
Wet days—Average number	4	3	3	3	4	3	3	2	1	2	3	5	36
<b>Meekatharra (1,676 feet)†—</b>													
Rainfall —Average (points)	135	118	80	34	78	160	64	38	16	11	41	21	796
Highest (points)	841	557	608	542	514	615	200	304	143	101	371	411	2,031
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	191
Highest one day (points) .....	335	330	405	431	303	238	134	153	132	84	322	270	431
Wet days—Average number	5	4	4	3	5	7	6	3	2	1	1	2	43
<b>Laverton (1,506 feet)†—</b>													
Rainfall —Average (points)	94	80	127	89	90	94	55	52	30	30	58	65	864
Highest (points)	559	567	479	805	487	497	192	334	265	198	598	530	1,782
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	258
Highest one day (points) .....	294	341	265	187	246	159	89	160	172	193	358	278	358
Wet days—Average number	3	3	3	4	4	5	4	3	2	2	2	2	37
<b>Kalgoorlie (1,247 feet)†—</b>													
Rainfall —Average (points)	73	143	64	82	88	108	99	76	68	36	61	45	943
Highest (points)	801	1,238	655	404	433	468	324	318	386	314	276	257	1,911
Lowest (points)	0	0	0	0	0	0	8	0	0	0	0	0	475
Highest one day (points) .....	379	700	279	282	315	225	147	137	174	246	254	199	700
Wet days—Average number	3	4	4	5	7	8	9	7	5	4	3	3	62
<b>Rawlinna (607 feet)†—</b>													
Rainfall —Average (points)	59	57	72	72	65	72	51	69	42	52	48	53	712
Highest (points)	828	483	336	448	319	513	207	609	334	250	317	461	1,956
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	310
Highest one day (points) .....	393	289	187	227	122	149	100	261	282	98	257	192	393
Wet days—Average number	2	2	3	3	4	5	4	4	3	3	3	2	38
<b>Collie (624 feet)†—</b>													
Rainfall —Average (points)	53	58	103	194	524	736	755	582	421	281	112	66	3,885
Highest (points)	304	702	414	719	1,036	1,865	1,731	1,628	977	837	352	317	5,769
Lowest (points)	0	0	0	15	58	230	203	123	57	24	2	1	2,377
Highest one day (points) .....	224	419	331	249	243	357	272	288	220	154	141	126	419
Wet days—Average number	4	3	6	10	16	19	21	19	17	13	8	5	141
<b>Manjimup (917 feet)†—</b>													
Rainfall —Average (points)	76	79	132	254	563	715	720	599	441	326	172	104	4,181
Highest (points)	320	462	542	763	1,059	1,307	1,258	1,272	1,010	652	478	306	6,934
Lowest (points)	0	0	2	34	104	339	168	193	94	74	10	0	2,558
Highest one day (points) .....	183	172	351	204	312	325	196	213	231	170	153	125	351
Wet days—Average number	6	5	8	11	18	20	22	21	16	15	11	8	161
<b>Pemberton (565 feet)†—</b>													
Rainfall —Average (points)	103	69	180	353	662	831	902	730	488	390	241	156	5,105
Highest (points)	579	347	519	821	1,331	1,469	1,563	1,572	860	764	614	379	6,897
Lowest (points)	9	5	11	42	141	497	519	412	208	97	43	19	3,601
Highest one day (points) .....	252	133	310	284	310	248	280	181	163	210	222	162	310
Wet days—Average number	7	5	9	12	18	20	21	20	17	15	12	9	165
<b>Mount Barker (829 feet)†—</b>													
Rainfall —Average (points)	88	94	144	224	341	394	420	367	325	281	159	117	2,954
Highest (points)	706	702	505	920	957	824	1,027	683	618	630	610	343	4,326
Lowest (points)	4	3	14	15	64	170	88	131	72	64	13	5	1,688
Highest one day (points) .....	412	284	192	548	270	206	285	259	175	214	251	173	548
Wet days—Average number	7	7	10	12	17	19	20	19	17	16	11	9	164

† Height above mean sea-level.







[illegible]



TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>COASTAL—<i>continued</i></b>													
<i>Esperance—</i>													
Temperature:													
Mean max., °F. ....	76.6	77.5	75.4	72.2	67.4	63.6	62.1	63.5	66.4	68.4	71.9	74.5	70.0
Mean min., °F. ....	59.9	60.3	58.9	54.4	50.3	46.8	45.4	45.7	47.9	50.3	54.4	57.5	52.6
Highest max., °F. ....	117.0	111.4	110.5	102.0	91.5	81.0	78.8	88.7	96.0	103.8	108.0	112.0	117.0
Lowest min., °F. ....	40.8	40.8	39.0	38.0	35.0	32.0	31.0	32.0	34.3	33.9	38.0	40.0	31.0
Number of days 90° and over	3.1	3.1	2.6	0.8	0.1	0.0	0.0	0.0	0.1	0.6	1.6	2.5	14.5
Number of days 100° and over	1.2	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8	3.8
Number of days 36° and under	0.0	0.0	0.0	0.0	0.1	0.8	0.9	0.5	0.2	0.0	0.0	0.0	2.5
<i>Eucla—</i>													
Temperature:													
Mean max., °F. ....	78.2	78.5	77.5	74.9	70.5	65.6	64.5	66.9	70.1	72.9	74.7	77.0	72.6
Mean min., °F. ....	62.4	63.0	60.9	56.3	50.8	46.4	44.3	45.1	47.9	51.9	56.5	59.8	53.8
Highest max., °F. ....	123.2	120.0	112.0	106.6	96.4	92.0	89.8	94.9	104.0	109.6	116.0	120.8	123.2
Lowest min., °F. ....	45.0	43.8	40.2	39.9	33.0	28.0	28.1	29.1	31.0	31.5	37.0	38.0	28.0
Number of days 90° and over	3.0	3.0	4.0	2.0	1.0	0.0	0.0	0.0	1.0	4.0	4.0	4.0	26.0
Number of days 100° and over	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	12.0
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	1.0	3.0	2.0	0.0	0.0	0.0	0.0	6.0
<b>WHEAT BELT</b>													
<i>Carnamah—</i>													
Temperature:													
Mean max., °F. ....	95.7	95.5	89.4	82.3	72.2	67.2	64.2	67.0	71.6	77.9	85.3	90.8	79.9
Mean min., °F. ....	63.5	63.7	60.5	56.0	49.7	47.3	44.7	44.6	45.5	49.4	54.6	59.2	53.2
Highest max., °F. ....	114.1	114.0	111.0	102.0	91.0	82.0	82.0	85.0	95.1	104.0	109.5	111.0	114.1
Lowest min., °F. ....	41.1	44.5	44.0	35.0	34.0	32.0	33.0	33.3	33.9	34.0	36.2	44.0	32.0
Number of days 90° and over	23.8	22.2	18.7	6.5	0.0	0.0	0.0	0.0	0.6	3.5	8.8	16.8	100.9
Number of days 100° and over	12.2	9.4	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	5.9	33.4
Number of days 36° and under	0.0	0.0	0.0	0.0	0.1	0.5	0.8	0.8	0.3	0.0	0.0	0.0	2.5
<i>Wongan Hills—</i>													
Temperature:													
Mean max., °F. ....	92.7	90.4	87.9	78.4	67.2	62.4	60.4	61.9	68.6	73.5	80.2	85.6	75.8
Mean min., °F. ....	63.1	62.9	61.1	55.5	48.5	45.2	41.8	41.7	45.6	47.9	52.0	57.1	51.9
Highest max., °F. ....	112.0	109.6	108.5	98.6	89.2	74.2	76.3	79.6	90.3	99.5	104.2	111.6	112.0
Lowest min., °F. ....	47.9	49.1	42.1	37.1	34.2	33.0	32.2	31.5	32.3	35.0	39.7	41.5	31.5
Number of days 90° and over	18.3	15.5	14.5	2.7	0.0	0.0	0.0	0.0	0.0	1.0	5.2	10.7	67.9
Number of days 100° and over	6.7	4.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7	13.9
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.8	2.5	2.7	1.1	0.0	0.0	0.0	7.3
<i>Kellerberrin—</i>													
Temperature:													
Mean max., °F. ....	93.0	92.3	86.4	79.1	69.3	63.4	61.3	64.0	70.2	76.1	85.0	90.5	77.5
Mean min., °F. ....	61.6	61.4	58.8	52.2	46.5	43.6	41.5	41.9	43.8	47.8	54.5	58.8	51.0
Highest max., °F. ....	115.0	116.0	112.0	102.6	96.0	80.4	76.0	82.6	97.7	103.0	109.5	113.0	116.0
Lowest min., °F. ....	45.0	43.0	40.7	34.0	28.0	26.5	26.0	27.6	30.0	32.5	35.0	42.0	26.0
Number of days 90° and over	19.9	16.7	11.3	2.7	0.2	0.0	0.0	0.0	0.0	0.2	1.8	8.5	76.3
Number of days 100° and over	6.9	5.5	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.4	4.6	20.4
Number of days 36° and under	0.0	0.0	0.0	0.1	2.4	4.6	7.4	7.0	3.4	0.6	0.0	0.0	25.5
<i>Southern Cross—</i>													
Temperature:													
Mean max., °F. ....	94.3	93.0	87.0	78.9	69.5	63.0	61.7	64.7	72.0	77.7	86.5	92.3	78.4
Mean min., °F. ....	62.2	62.2	58.4	51.7	45.1	41.5	39.1	40.3	43.1	47.9	55.0	59.9	50.5
Highest max., °F. ....	115.0	117.0	112.0	103.2	92.0	81.5	80.0	85.9	94.6	102.8	110.2	114.6	117.0
Lowest min., °F. ....	42.0	42.0	38.2	30.0	26.0	24.3	23.0	25.0	26.0	30.6	35.6	40.8	23.0
Number of days 90° and over	21.5	17.3	12.7	3.2	0.0	0.0	0.0	0.0	0.4	2.7	10.6	18.5	86.9
Number of days 100° and over	9.1	7.2	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.0	6.4	27.4
Number of days 36° and under	0.0	0.0	0.0	0.6	2.4	7.1	8.6	9.6	3.5	0.4	0.0	0.0	32.2
<i>Merredin—</i>													
Temperature:													
Mean max., °F. ....	92.8	91.5	85.8	77.2	68.0	62.1	60.1	62.7	69.3	75.3	83.3	89.1	76.4
Mean min., °F. ....	62.2	62.1	59.3	52.9	46.3	43.2	40.4	40.3	42.4	46.9	53.8	58.8	50.7
Highest max., °F. ....	113.0	112.0	109.6	101.8	93.5	81.4	77.4	82.2	92.6	102.5	107.0	112.1	113.0
Lowest min., °F. ....	45.5	43.0	41.2	29.8	25.0	27.0	25.3	25.9	27.5	29.8	33.0	41.0	25.0
Number of days 90° and over	19.8	16.1	10.6	1.7	0.0	0.0	0.0	0.0	0.1	1.5	7.1	14.0	70.9
Number of days 100° and over	6.2	5.0	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7	3.5	17.0
Number of days 36° and under	0.0	0.0	0.0	0.4	1.4	4.2	6.5	8.7	4.2	0.8	0.0	0.0	26.2
<i>Northam—</i>													
Temperature:													
Mean max., °F. ....	92.8	92.3	86.5	79.2	69.5	63.5	61.8	63.8	69.1	74.2	83.6	89.6	77.2
Mean min., °F. ....	62.7	62.7	59.8	53.2	47.3	43.7	41.7	42.4	44.9	48.3	55.1	60.1	51.8
Highest max., °F. ....	115.2	116.0	111.0	103.0	93.0	81.0	76.0	82.4	94.2	103.0	111.3	114.0	116.0
Lowest min., °F. ....	45.1	45.5	41.9	33.0	27.2	25.0	28.3	30.0	30.4	32.8	37.4	42.0	25.0
Number of days 90° and over	20.2	17.3	11.7	3.2	0.1	0.0	0.0	0.0	0.1	1.3	7.1	15.0	76.0
Number of days 100° and over	7.3	5.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	4.5	21.3
Number of days 36° and under	0.0	0.0	0.0	0.2	1.1	4.7	5.5	6.2	2.0	0.2	0.0	0.0	19.9

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>WHEAT BELT—<i>continued</i></b>													
<i>Wandering—</i>													
Temperature:													
Mean max., °F. ....	88.3	87.6	82.0	74.9	65.9	60.5	59.2	60.5	64.9	69.6	78.9	84.9	73.1
Mean min., °F. ....	56.5	55.9	53.6	47.5	43.6	40.5	39.0	39.3	41.4	43.8	48.9	53.5	47.0
Highest max., °F. ....	114.0	110.8	107.5	97.0	87.0	77.0	71.8	79.0	86.0	98.5	103.5	109.0	114.0
Lowest min., °F. ....	38.0	37.0	30.9	28.0	22.0	21.8	24.0	25.0	27.0	28.0	29.0	35.0	21.8
Number of days 90° and over	15.2	12.0	9.3	1.3	0.0	0.0	0.0	0.0	0.0	0.4	2.3	7.4	47.9
Number of days 100° and over	3.7	2.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	8.0
Number of days 36° and under	0.0	0.0	0.0	1.3	7.9	9.8	9.9	9.5	9.4	5.3	1.0	0.3	54.4
<i>Narrogin—</i>													
Temperature:													
Mean max., °F. ....	87.5	86.2	81.0	73.3	64.6	59.2	57.8	59.3	64.1	69.2	78.1	83.9	72.0
Mean min., °F. ....	56.5	56.5	54.4	50.1	45.6	43.1	41.2	41.1	42.4	44.5	49.1	53.1	48.1
Highest max., °F. ....	110.7	109.1	105.6	96.0	89.5	79.1	70.2	76.8	86.7	100.0	103.5	109.7	110.7
Lowest min., °F. ....	39.8	39.0	37.9	32.0	29.5	28.0	27.2	27.2	26.5	29.0	32.0	35.2	26.5
Number of days 90° and over	11.5	9.0	4.3	0.6	0.0	0.0	0.0	0.0	0.0	0.2	2.6	7.2	35.4
Number of days 100° and over	2.1	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	5.3
Number of days 36° and under	0.0	0.0	0.0	0.4	2.4	3.8	6.6	6.5	6.9	3.4	0.9	0.1	31.0
<i>Katanning—</i>													
Temperature:													
Mean max., °F. ....	86.0	85.1	79.3	73.2	64.7	59.7	57.9	59.5	64.1	68.8	77.6	82.8	71.6
Mean min., °F. ....	56.3	56.5	54.7	50.4	46.5	43.6	41.9	42.0	43.7	45.7	50.2	53.8	48.8
Highest max., °F. ....	110.9	112.3	107.0	96.2	88.4	75.3	71.0	88.0	87.0	100.0	106.0	110.0	112.3
Lowest min., °F. ....	41.0	37.9	35.0	33.0	30.0	28.3	25.0	28.1	29.8	31.0	35.0	37.6	25.0
Number of days 90° and over	12.3	7.5	5.3	1.1	0.0	0.0	0.0	0.0	0.0	0.3	2.0	5.9	34.4
Number of days 100° and over	2.6	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.2
Number of days 36° and under	0.0	0.0	0.0	0.2	1.8	3.6	4.4	4.5	2.8	1.1	0.2	0.0	18.6
<b>OTHER INLAND</b>													
<i>Halls Creek—</i>													
Temperature:													
Mean max., °F. ....	97.6	97.0	95.6	92.3	85.7	80.6	80.1	85.9	92.7	98.3	100.5	99.5	92.2
Mean min., °F. ....	75.4	74.2	71.2	63.0	56.0	50.5	47.6	52.1	59.0	69.5	74.2	75.5	64.0
Highest max., °F. ....	111.8	110.8	107.6	103.8	99.0	95.0	93.2	100.0	104.3	110.8	110.8	111.6	111.8
Lowest min., °F. ....	60.0	54.0	51.8	45.0	36.4	32.4	30.0	32.8	37.4	48.0	53.0	53.8	30.0
Number of days 90° and over	28.5	24.8	29.1	22.7	9.5	0.8	1.3	7.3	23.2	29.2	29.7	29.0	235.1
Number of days 100° and over	17.8	8.5	9.6	1.6	0.0	0.0	0.0	0.0	0.7	12.7	17.6	19.2	87.7
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.0	1.1
<i>Marble Bar—</i>													
Temperature:													
Mean max., °F. ....	106.2	105.5	102.9	97.0	88.0	80.9	80.6	85.8	93.8	100.1	105.9	107.5	96.2
Mean min., °F. ....	78.9	78.6	76.8	69.5	61.3	54.7	52.4	55.7	61.7	68.7	75.2	78.1	67.6
Highest max., °F. ....	120.5	119.0	116.0	113.0	103.0	93.0	95.0	99.0	108.7	114.0	117.0	119.0	120.5
Lowest min., °F. ....	66.0	57.0	59.6	52.0	42.0	34.0	36.0	39.0	42.0	50.0	58.0	63.0	34.0
Number of days 90° and over	30.3	26.5	28.8	26.0	10.1	0.5	0.8	7.3	22.6	26.3	30.0	30.5	239.7
Number of days 100° and over	27.9	22.1	18.9	8.8	0.2	0.0	0.0	0.0	2.0	12.6	24.2	28.7	145.4
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.0	0.0	0.0	0.0	1.0
<i>Mundibindi—</i>													
Temperature:													
Mean max., °F. ....	100.5	98.7	94.0	86.7	77.7	70.4	70.0	74.6	83.2	89.4	96.2	99.8	86.8
Mean min., °F. ....	73.6	72.7	69.0	60.3	51.2	43.4	41.4	45.0	51.3	58.6	66.7	71.2	58.7
Highest max., °F. ....	112.2	112.0	108.2	105.0	97.6	85.7	87.0	99.0	99.0	106.5	110.0	112.0	112.2
Lowest min., °F. ....	57.0	55.0	49.1	39.0	28.9	24.0	22.4	25.5	29.0	37.9	46.0	53.0	22.4
Number of days 90° and over	29.3	25.3	25.4	11.6	0.6	0.0	0.0	0.4	5.6	15.9	25.3	29.1	168.5
Number of days 100° and over	20.3	15.7	10.2	0.2	0.0	0.0	0.0	0.0	0.0	1.3	9.8	19.9	77.4
Number of days 36° and under	0.0	0.0	0.0	0.0	0.6	5.6	7.3	3.7	0.2	0.0	0.0	0.0	17.4
<i>Warburton Range—</i>													
Temperature:													
Mean max., °F. ....	98.1	97.0	92.5	83.5	73.6	69.0	68.1	72.2	80.5	86.0	91.3	97.0	84.1
Mean min., °F. ....	71.8	70.5	67.9	58.6	49.5	43.6	42.0	44.9	51.0	57.1	63.7	69.5	57.5
Highest max., °F. ....	115.8	116.4	110.1	104.7	92.0	90.1	89.0	93.8	103.8	108.9	112.0	115.3	116.4
Lowest min., °F. ....	50.0	48.4	49.2	35.2	30.0	27.4	24.7	28.0	34.0	39.4	45.0	49.0	24.7
Number of days 90° and over	26.0	23.0	22.0	7.0	0.0	0.0	0.0	0.0	6.0	13.0	19.0	24.0	142.0
Number of days 100° and over	16.0	13.0	9.0	1.0	0.0	0.0	0.0	0.0	0.0	2.0	8.0	14.0	63.0
Number of days 36° and under	0.0	0.0	0.0	0.0	1.0	4.0	6.0	5.0	0.0	0.0	0.0	0.0	16.0
<i>Meekatharra—</i>													
Temperature:													
Mean max., °F. ....	100.4	99.7	93.9	85.7	76.0	68.6	67.5	71.2	78.6	84.8	92.9	98.2	84.8
Mean min., °F. ....	73.1	73.1	69.4	61.0	52.5	46.3	44.0	46.5	51.0	56.9	64.7	70.0	59.0
Highest max., °F. ....	113.0	114.1	110.4	104.2	94.4	85.0	81.7	90.7	97.0	103.0	109.1	110.6	114.1
Lowest min., °F. ....	54.0	54.1	50.6	42.4	33.0	26.4	31.6	32.2	34.0	40.2	43.0	51.9	26.4
Number of days 90° and over	28.8	24.3	21.7	9.8	0.3	0.0	0.0	0.1	1.8	8.3	17.9	25.6	138.6
Number of days 100° and over	18.6	13.7	6.2	0.3	0.0	0.0	0.0	0.0	0.0	0.4	3.5	10.6	53.3
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.9	1.3	0.1	0.0	0.0	0.0	0.0	2.5

## TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—continued

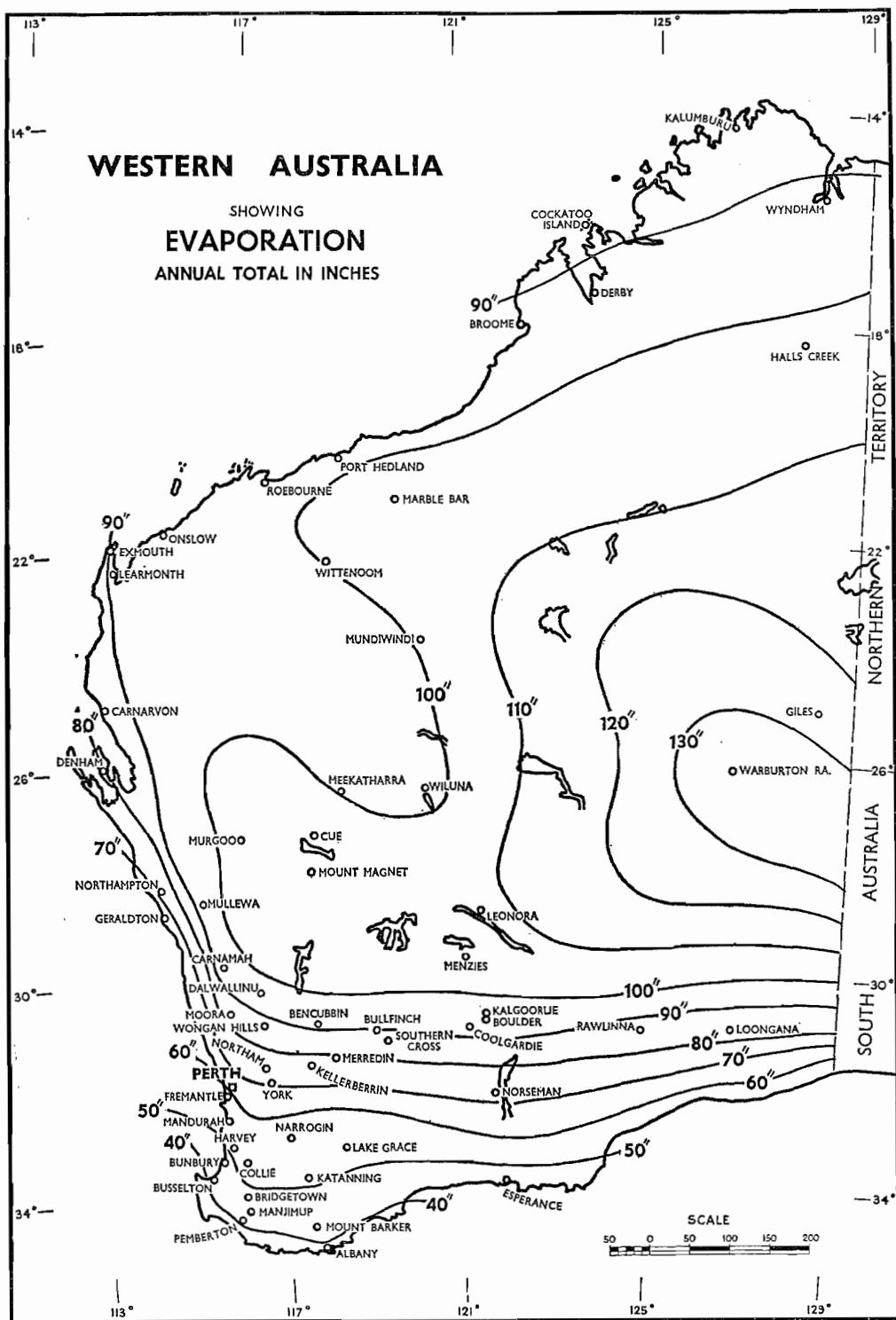
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>OTHER INLAND—continued</b>													
<b>Laverton—</b>													
Temperature:													
Mean max., °F. ....	96.4	95.0	89.3	81.1	71.8	64.9	64.1	68.2	76.2	82.1	89.6	94.9	81.1
Mean min., °F. ....	68.7	68.2	64.4	56.9	49.0	43.5	41.3	43.7	49.2	54.7	61.8	66.7	55.7
Highest max., °F. ....	115.0	115.0	112.0	104.0	95.0	86.3	86.1	93.0	98.2	105.0	111.0	114.0	115.0
Lowest min., °F. ....	50.0	45.5	43.0	37.0	30.4	27.0	24.5	27.0	30.0	36.0	40.0	50.0	24.5
Number of days 90° and over	24.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	2.0	7.0	16.0	23.0	112.0
Number of days 100° and over	12.0	10.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.0	10.0	42.0
Number of days 36° and under	0.0	0.0	0.0	0.0	1.0	4.0	6.0	4.0	0.0	0.0	0.0	0.0	15.0
<b>Kalgoorlie—</b>													
Temperature:													
Mean max., °F. ....	93.2	93.0	86.3	78.4	70.1	63.6	62.5	66.0	73.6	79.0	86.3	91.1	78.6
Mean min., °F. ....	64.2	64.4	61.3	55.2	48.9	44.6	42.9	43.9	48.2	52.7	58.3	62.3	53.9
Highest max., °F. ....	114.4	115.0	111.0	102.5	92.0	81.8	81.0	87.0	96.0	105.2	110.6	113.0	115.0
Lowest min., °F. ....	47.1	48.0	41.6	35.0	28.8	27.4	26.0	27.7	30.9	30.2	38.2	45.5	26.0
Number of days 90° and over	18.8	12.9	10.8	2.9	0.1	0.0	0.0	0.0	0.4	2.9	7.4	14.8	71.0
Number of days 100° and over	7.5	4.3	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.3	3.9	20.1
Number of days 36° and under	0.0	0.0	0.0	0.1	0.3	1.8	3.9	3.6	0.3	0.0	0.0	0.0	10.0
<b>Rawlinna—</b>													
Temperature:													
Mean max., °F. ....	90.0	89.8	84.4	78.0	71.2	65.3	64.2	67.3	74.4	79.0	84.4	88.8	78.1
Mean min., °F. ....	58.9	59.2	57.8	52.2	46.4	41.6	39.3	41.1	45.3	49.4	54.2	57.6	50.2
Highest max., °F. ....	118.0	115.5	112.0	104.0	95.0	88.3	85.0	93.0	102.7	107.0	112.2	114.3	118.0
Lowest min., °F. ....	42.0	41.0	42.9	35.0	32.0	29.2	27.8	26.2	31.6	33.2	36.4	41.2	26.2
Number of days 90° and over	14.8	10.8	10.3	2.8	0.5	0.0	0.0	0.0	1.7	3.6	7.9	13.3	65.7
Number of days 100° and over	6.8	3.5	3.2	0.2	0.0	0.0	0.0	0.0	0.1	0.8	2.5	5.7	22.8
Number of days 36° and under	0.0	0.0	0.0	0.0	1.2	3.5	5.3	4.4	0.8	0.2	0.0	0.0	15.4
<b>Collie—</b>													
Temperature:													
Mean max., °F. ....	86.4	85.7	80.4	74.3	65.9	61.3	59.8	61.0	64.8	68.8	77.2	83.0	72.4
Mean min., °F. ....	55.6	54.9	52.5	47.1	42.9	40.4	39.1	39.8	42.5	45.3	49.7	53.1	46.9
Highest max., °F. ....	112.0	110.2	105.4	98.0	86.8	76.0	73.0	79.0	86.6	97.4	101.8	106.2	112.0
Lowest min., °F. ....	37.7	35.2	32.3	29.6	28.0	24.8	25.0	26.2	28.0	31.0	32.6	35.0	24.8
Number of days 90° and over	13.0	11.3	8.0	1.2	0.0	0.0	0.0	0.0	0.0	0.3	2.1	5.7	41.6
Number of days 100° and over	2.2	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	5.5
Number of days 36° and under	0.0	0.0	0.1	0.8	5.3	7.8	7.9	6.6	5.9	1.8	0.3	0.1	36.6
<b>Manjimup—</b>													
Temperature:													
Mean max., °F. ....	78.3	79.4	74.8	69.5	62.8	59.3	57.4	58.7	61.4	64.7	71.0	75.3	67.7
Mean min., °F. ....	53.7	54.0	53.0	50.5	46.5	44.5	42.5	43.0	43.7	46.2	49.3	51.8	48.2
Highest max., °F. ....	107.0	105.0	102.0	92.0	81.0	72.0	71.0	76.4	82.5	92.0	99.3	100.0	107.0
Lowest min., °F. ....	42.0	40.0	38.0	35.0	34.0	33.0	27.0	30.0	31.0	33.0	35.0	40.0	27.0
Number of days 90° and over	5.7	4.3	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0	16.1
Number of days 100° and over	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
Number of days 36° and under	0.0	0.0	0.0	0.1	0.5	1.3	2.3	3.2	2.1	0.1	0.0	0.0	9.6
<b>Penberthon—</b>													
Temperature:													
Mean max., °F. ....	78.7	78.5	75.1	68.9	63.6	60.1	57.9	59.6	61.6	64.6	69.8	73.9	67.7
Mean min., °F. ....	55.4	56.1	54.8	51.3	48.4	46.8	44.4	44.2	44.9	46.6	49.8	52.9	49.6
Highest max., °F. ....	106.0	103.0	102.0	93.0	80.0	72.0	70.0	78.0	83.0	87.0	95.0	100.0	106.0
Lowest min., °F. ....	40.0	40.0	39.0	37.0	32.0	34.0	32.0	30.0	31.5	35.0	35.8	39.0	30.0
Number of days 90° and over	3.9	2.8	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	12.2
Number of days 100° and over	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.7	1.3	1.6	0.9	0.2	0.0	0.0	4.9
<b>Mt Barker—</b>													
Temperature:													
Mean max., °F. ....	78.1	78.3	74.1	69.7	63.0	58.8	57.2	58.7	61.9	65.3	71.3	75.4	67.7
Mean min., °F. ....	54.1	54.3	53.4	50.5	46.8	44.1	42.0	42.4	44.0	45.9	49.3	52.2	48.3
Highest max., °F. ....	111.0	110.5	105.0	96.8	87.0	75.8	70.0	77.0	84.8	96.0	102.9	109.3	111.0
Lowest min., °F. ....	35.0	39.0	38.5	36.0	33.0	32.0	28.0	29.7	31.0	33.0	34.0	34.0	28.0
Number of days 90° and over	4.3	4.0	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.8	15.1
Number of days 100° and over	0.8	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.2
Number of days 36° and under	0.0	0.0	0.0	0.1	0.3	1.5	3.5	3.3	1.9	0.4	0.0	0.0	11.0

## THUNDERSTORMS

Thunderstorms are most frequent along the Kimberley coast where they occur during the 'Wet' season but are practically unknown in the 'Dry'. In the remainder of the tropics they occur over roughly the same period but the season is a little shorter and the storms less frequent.

In most of the State south from the tropics thunderstorms are most frequent in the summer months but in the south-west they are more uniformly distributed and in many places in coastal districts they are most frequent in winter.

The winter storms are often accompanied by hail which, however, is usually not heavy enough to cause any damage. Hail accompanying summer storms can be much heavier, and occasionally damages ripening crops in the wheat belt. Both winter and summer thunderstorms may be accompanied by severe squalls, but these are infrequent.







## EVAPORATION

Except in the lower south-west, evaporation from a free water surface exceeds the annual rainfall, and in a large proportion of the State it is more than ten times greater than the rainfall.

It is least in the winter months, amounting in July to less than one inch in the far south-west, and to about eight inches in the northern tropics. In January, when evaporation is highest, it totals about five inches on the far south coast and reaches fourteen inches in the East Gascoyne and North-Eastern Meteorological Districts. Further north, evaporation is reduced by the moister air over the tropics at this time of the year.

The map on page 46 shows total annual evaporation throughout the State.

## GROWING SEASON

Less moisture is required to sustain plant life when evaporation is low than when it is high, and the minimum amount required can be related to evaporation from a free water surface.

That part of the year during which rainfall is greater than this minimum amount (the 'effective rainfall'), may be taken as the *growing season*. The map on page 47 shows the length of this season in the agricultural area of the State. It is based on average monthly rainfall and effective rainfall, the latter being calculated from the formula  $P = 0.54 \times E^{0.7}$  (after Prescott), where P is effective rainfall and E is evaporation (both in inches per month).

## METROPOLITAN CLIMATE

Perth has more sunshine and a greater number of clear days during the year than any other State capital city. It also has the wettest winter, the driest summer, and is the windiest of the capital cities. The highest temperature on record for Perth is  $112.2^{\circ}$  (8 February 1933) and the lowest  $34.2^{\circ}$  (7 July 1916).

CLIMATOLOGICAL DATA—PERTH OBSERVATORY  
(For other data relating to Temperature and Rainfall see preceding tables)

Month	Wind				Temperature				Relative humidity (Saturation = 100%)		Sun- shine	Cloud (proportion of sky covered)	Evapora- tion
	Prevailing direction		Speed		Highest in sun	Lowest terrestrial	Mean	At 3 p.m.	Mean daily amount	Mean of readings at 9 a.m., 3 p.m., and 9 p.m.	Mean amount		
	9 a.m.	3 p.m.	Average	High- est									
Number of years of observations	30 (a)		30 (a)	54	62	67	30 (a)		30 (a)	30 (a)	30 (a)		
January .....	E.	SSW.	mph	mph	°F.	date	°F.	date	%	%	hours	%	inches
February .....	E.NE.	SSW.	10.9	50	177.3	22/1914	39.5	20/1925	53	43	10.4	29	10.37
March .....	E.	SSW.	10.7	54	173.7	4/1934	29.8	1/1913	52	43	9.8	31	8.63
April .....	E.	SSW.	10.1	70	167.0	19/1918	36.7	(b)	57	46	8.8	35	7.52
May .....	E.NE.	SSW.	8.5	63	157.0	8/1916	30.8	26/1960	60	48	7.5	42	4.62
June .....	NE.	WSW.	8.4	74	146.0	4/1925	25.0	31/1964	68	58	5.7	54	2.80
July .....	N.	NW.	8.4	80	135.5	9/1914	25.9	27/1946	72	63	4.8	59	1.82
August .....	NNE.	W.	8.8	85	133.2	13/1915	25.1	30/1920	73	63	5.4	56	1.76
September .....	N.	WNW.	9.4	97	145.1	29/1921	26.6	18/1966	71	60	6.0	56	2.37
October .....	E.NE.	SSW.	9.4	68	153.6	29/1916	27.2	(c)	64	57	7.2	49	3.44
November .....	SE.	SW.	10.0	65	161.2	19/1954	29.8	16/1931	64	54	8.1	48	5.38
December .....	E.	SSW.	10.7	63	167.0	30/1925	34.8	1/1968	57	47	9.6	39	7.65
Year—	E.	SSW.	11.0	64	168.8	11/1927	38.0	29/1957	54	46	10.4	32	9.69
Average....	E.	SSW.	9.7	....	....	....	....	....	62	52	7.8	44	....
Extremes	....	....	....	97	177.3	22/1/14	25.0	31/5/64	....	....	....	....	....
Total ....	....	....	....	....	....	....	....	....	....	....	....	....	66.05

(a) Standard 30 years' normal (1911-1940).  
8 September 1952 and 6 September 1956.

(b) Recorded on 8 March 1903 and 16 March 1967.

(c) Recorded on

## SNOW

Snow has been known to fall as far north as Wongan Hills, but it is only in the southern districts that it occasionally lies on the ground. It is seen on top of the Stirling Range for a short time nearly every winter, but elsewhere is very infrequent and of negligible importance.

## INTERSTATE COMPARISONS

In general, humidity and rainfall are lower in Western Australia than in corresponding places in eastern Australia. The following table shows average rainfall, mean humidity and temperature for groups of reporting stations at approximately the same latitude. The stations have been selected in such a way that, in each pair, one is on the west coast and the other on the east coast or, where a pair relates to inland stations, each station is situated at about the same distance from the coast. The group appearing last in the table has been included to provide a comparison between observations at Albany, the most southerly town in Western Australia, and those at places elsewhere in Australia at about the same latitude. The height above mean sea-level is also given for each station.

## INTERSTATE COMPARISONS—RAINFALL, HUMIDITY, TEMPERATURE

Reporting station	Height above mean sea- level	Average rainfall		Relative humidity (a)		Average daily mean temperature	
		May to October	November to April	May to October	November to April	May to October	November to April
	feet	inches	inches	%	%	°F.	°F.
Bunbury ....	17	29.96	5.01	77	70	57.0	67.5
Sydney, New South Wales ....	138	21.53	23.27	66	69	58.2	69.3
Perth ....	52	30.24	4.80	69	55	58.2	70.8
Newcastle, New South Wales ....	112	20.56	20.80	70	74	58.7	69.7
Kalgoorlie ....	1,247	5.16	4.53	58	48	58.0	74.5
Cobar, New South Wales ....	822	5.88	6.73	59	46	56.3	75.2
Geraldton ....	13	16.04	2.39	67	62	62.3	73.0
Brisbane, Queensland ....	137	12.01	28.08	66	69	63.3	74.7
Wihuna ....	1,700	3.21	6.59	50	35	60.4	80.9
Charleville, Queensland ....	965	6.19	11.78	55	46	61.1	79.5
Carnarvon ....	15	6.48	2.60	63	63	65.5	77.4
Bundaberg, Queensland ....	45	10.86	31.51	73	74	64.5	75.7
Mundiwindi ....	1,840	2.74	8.28	39	30	63.0	82.4
Longreach, Queensland ....	612	3.92	11.62	50	50	65.7	82.3
Onslow ....	14	4.45	4.88	55	56	69.3	82.9
Mackay, Queensland ....	35	11.49	51.67	78	80	66.8	77.7
Port Hedland ....	25	3.33	9.23	50	59	72.6	85.3
Townsville, Queensland ....	73	5.49	37.57	66	73	71.7	80.3
Derby ....	53	1.67	23.78	51	65	76.9	86.5
Innisfail, Queensland ....	22	35.88	103.27	85	85	69.7	78.1
Wyndham ....	23	1.13	25.51	43	59	80.9	88.0
Cooktown, Queensland ....	17	8.08	59.79	76	78	75.1	81.1
Albany ....	41	28.75	8.87	76	73	55.8	64.3
Adelaide, South Australia ....	140	14.42	6.67	64	45	56.5	69.6
Swan Hill, Victoria ....	230	7.88	5.21	70	54	53.4	69.8
Canberra, Australian Capital Territory ....	1,837	11.85	11.45	72	61	57.5	64.0

(a) Saturation = 100%.

## Chapter II—continued

### Part 3—The Vegetation of Western Australia

With an Account of the Family Rutaceae

Contributed by P. G. Wilson

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#### THE FLORA OF WESTERN AUSTRALIA

The State of Western Australia occupies about one-third of the land area of the continent and its flora contains approximately half of the total number of vascular plant species. It consists of about 6,500 flowering plants (angiosperms), 15 gymnosperms (*e.g.* cycads and conifers) and 50 ferns. The families of flowering plants which predominate in number of species in Western Australia are those which also predominate in the other States, *e.g.* the Myrtaceae, Leguminosae, Proteaceae, and Epacridaceae. None of the larger families is restricted in its distribution to Australia although several, such as the Stylidiaceae, Goodeniaceae and Epacridaceae, are only poorly represented elsewhere. Below the level of the family there are large groups which are endemic to Australia and it is often these which give the individuality to the Western Australian vegetation. Examples are the Chloanthoideae (Verbenaceae), Prostantheroideae (Labiatae), Persoonieae and Banksieae (Proteaceae), and the Epacrideae (Epacridaceae). All these groups are Australia-wide in distribution and, except for five small families, endemism in Western Australia is at the genus and species level only.

The distribution of species is of course dependent on the past tectonic and climatic history of the continent, as well as on present-day climatic and edaphic (soil condition) factors, and a knowledge of this history contributes to an understanding of the present-day plant geography.

It is generally accepted that in the Palaeozoic era Australia was united with the continents of southern Africa, South America and Antarctica into a common land-mass known as Gondwana. During this period the countries had a common flora exemplified by the *Glossopteris* elements (which were fern-like plants) but they lacked any flowering-plant ancestors. The break-up of the Gondwana land-mass began during the Jurassic era, also before the emergence of flowering plants in Australia. Thus, if this is correct, any present-day relationship between the floras of the southern continents must be due to causes other than that of a direct land connection in the past.

Following the break-up of Gondwana and the dispersal of the southern continents, it is thought that Australia came into contact in the north-east with a continent made up of New Guinea and a land which, in part at least, now lies beneath the ocean in the Coral Sea zone. It was presumably from this continent that, towards the end of the Cretaceous period, the early-flowering plants and conifers entered Australia.

The flora of the early Tertiary era consisted partly of plants now associated with the New Guinea rain forests (the cinnamomum flora), partly of an apparently cool temperate assemblage, and partly of the typical Australian element. In the first category were found such broad-leaved genera as *Cinnamomum* and *Tristania*. In the second the genera *Dacrydium*, *Podocarpus*, *Araucaria*, *Nothofagus*, and *Phyllocladus*. And in the third, *Banksia*, *Eucalyptus*, *Callitris* and *Casuarina*.

At right — The wildflower *Calytrix variabilis* is endemic to the South-West of Western Australia. The genus *Calytrix* is found only in Australia and is easily recognisable from the long hair-like awns which extend from the calyx lobes. The reproduction is about three times life size.

Photographs by F. A. Sharr

Below—The *Verticordia Drummondii* is a wildflower peculiar to Western Australia. The verticordias, or feather flowers, are among the commonest and most attractive flowers of the bush. Those depicted are about two and a half times life size.



It is possible that a change from an equable climate to a markedly seasonal one in the middle Tertiary period caused certain genera to die out, to be restricted to refuges or to survive only in southern moist regions. In Western Australia the cinnamomum element was largely eliminated while the cool-temperate assemblage was much reduced. The genus *Nothofagus*, for instance, is now extinct in this State, while of *Podocarpus* only one species remains and this is restricted to the forests of the South-West. In contrast, the Australian-element diversified and adapted itself to the varied climatic conditions and to the impoverished soil which is general throughout Western Australia. It also gave rise to a flora resistant to fire and in some ways apparently, adapted to it. An example of this adaption is the ability of some eucalypts to regenerate from their epicormic buds or from their lignotubers. Other adaptations are seen in the woody fruits of some Proteaceae which release their seeds after burning, and in the stimulus fire has on the germination of seeds which are lying dormant in the soil.

During the later period of diversification the south-west region of Western Australia was probably effectively isolated from the east by a shallow sea which occupied the present Nullarbor Plain, while the arid interior also restricted transcontinental movement of species. The plants in this south-west district were therefore able to evolve in semi-isolation and this they did to produce a flora rich in both number of species and in percentage of endemics.

The families which have been most successful in the South-West as exemplified by both number of species and size of populations, are those which, as mentioned above, flourish over a large part of Western Australia, and also in the other States. Within these families, however, the genera are frequently endemic to the South-West Botanical Province, an area which extends from Shark Bay in the north to Israelite Bay in the south, and bounded inland approximately by the ten-inch isohyet. In the family Proteaceae the genera *Dryandra*, *Stirlingia*, *Synaphea* and *Franklandia* are endemic. In the Myrtaceae the genera *Conothamnus*, *Eremaea*, *Phymatocarpus* and *Regelia* are also limited to this region.

At the species level the endemism is even more marked and it is estimated that about 75 per cent of the species in the South-West Botanical Province are found nowhere else.

The five families which are endemic to Western Australia are also limited (or almost limited) in their distribution to the South-West Province. These are Cephalotaceae, Eremosynaceae, Emblingiaceae, Ecdeiocoleaceae, and Anarthriaceae. The first four families are monotypic (they have only one genus each with one species), while the last is monogeneric but with several species. *Cephalotus*, the Albany Pitcher Plant, is the only one of these endemics which is at all widely known. Its fame rests in its flask-shaped leaves with lids, which it possesses in addition to normal foliage leaves. The species is found in boggy, mineral-deficient situations, where the pitchers act as traps for insects, the flesh of which is absorbed and presumably provides the plant with additional nitrogen.

The genus *Eremosyne* is a low herb with insignificant flowers; it is known from only a small area in the Karri forests. Although considered to be distinct, both *Eremosyne* and *Cephalotus* are related to the large and widespread family Saxifragaceae, and presumably are segregates from the same ancestral group.

The only species in the Emblingiaceae, *Emblingia calceoliflora*, is a prostrate plant with small flowers. It is probably related to the *Polygala* family.

The species in the families Anarthriaceae and Ecdeiocoleaceae are all plants of the heaths, and in habit resemble the 'rushes' and sedges of the families Restionaceae and Cyperaceae to which they are undoubtedly related.

While the initial isolation of the flora (with its consequent diversification) of the South-West Province was due to tectonic, and secondarily climatic developments, it is likely that edaphic factors now also prevent the movement of species for the soils of the Province are, on the whole, extremely deficient in those minerals required by most plants for normal growth. To this deficiency the native plants are adapted and it is in the areas of great deficiency that the flora exhibits in its heath plants some of its greatest diversity and display of colour.



## THE FAMILY RUTACEAE IN WESTERN AUSTRALIA

One of the groups of flowering plants which illustrates the relationship of the flora of Western Australia to that of the other States and the rest of the world is the family Rutaceae.

The genus *Ruta*, from which the family name is derived, is a native of the northern hemisphere. Known locally in England as the 'herb of grace' for its actual or fancied virtues, it was (and still is) considered to be of culinary and medicinal importance, a reputation probably founded on the astringent oil in its leaves which imparts a piquancy to food. The presence of a sprig in a house, it is claimed, will contribute towards a zest for living as well as help to ward off pests and diseases. The species of Rutaceae in Western Australia include no plant of comparable repute although many possess some of its properties. The plant *Correa*, for instance, was at one time used by sealers for making a brew reminiscent of tea and the leaves in the form of a poultice were applied to wounds by the Aborigines, while along some of the streams of the South-West is found a shrub (*Phebalium anceps*) whose sap will cause blistering of the skin as do some species of *Ruta*.

All the Rutaceae species of Western Australia possess glands which secrete a strongly smelling oil, and it is probable that if some of these plants had been known to the early herbalists, they would have ascribed to them properties similar to those they gave to the European species.

The Rutaceae family as a whole is distributed throughout the temperate and tropical regions of the world, but certain tribes are largely confined to one or other of the continents. Only four of the eleven are represented in Australia and, of these, three are found in Western Australia. They are the Aurantieae, the Zanthoxyleae and the Boronieae.

The tribe Aurantieae, which includes the citrus fruits of commerce, has only one Western Australian representative, *Paramignya trimera*. It is a scrambling shrub armed with spines and bears as its fruit a small, scarcely-edible berry. The plant is grown in Java as a hedge and, presumably because of its thorns, is able to keep stock under control. In Western Australia it is known only from the tropical coast but little collecting has been carried out in the region where it is likely to be found.

A few species, also belonging to the Aurantieae, occur in eastern Australia but the majority are found in south-east Asia and, considering the present distribution of our one native species, it would seem likely that it is a relatively recent introduction from that area.

The tribe Zanthoxyleae is likewise represented by a single genus containing one species. It is *Geijera linearifolia*, also known as 'sheep bush' or 'oil bush'. The plant is found in the south-east of the State where it forms a small tree, and in fact it is the only tree member of the Rutaceae indigenous to Western Australia. Four other species of *Geijera* are known, all from the other States of Australia.

The third tribe, the Boronieae, includes the other fourteen Rutaceae genera found in Western Australia; of these, six are endemic as are most of the species within the other eight genera. The endemic genera and species are largely confined to the South-West Botanical Province, a fact which supports the hypothesis that this area has been more or less isolated from the other States by climatic, edaphic, or tectonic factors for a very long time, possibly since the mid-Tertiary period. The species which are not endemic are coastal or near coastal through at least part of their range where their distribution is more or less continuous with neighbouring States. Examples are *Boronia lanuginosa* (syn. *B. artemisiifolia*) which is a tropical coastal species, and *Correa reflexa* var. *coriacea*, a temperate south-coastal plant. The only other non-endemic members are *Boronia coerulescens* and two species of *Microcybe*. These are all found in the south-east of Western Australia as well as along the Great Australian Bight in South Australia.

The eight non-endemic genera are *Boronia*, *Eriostemon*, *Phebalium*, *Crowea*, *Microcybe*, *Urocarpus* (*Asterolasia*), *Philotheca*, and *Drummondita*.

The first genus, *Boronia*, is known to the public mainly through the 'brown boronia' (*Boronia megastigma*), which is sold in the early spring in the streets of Perth on account of its lemon-scented flowers. The plant is a native of the seasonally swampy lands of the South-West between Albany and Manjimup where it forms low thickets. It is now grown



commercially in Victoria and in other places for sale as cut flowers and for the perfume industry. Beside the brown boronia there are over forty other species of *Boronia* in Western Australia. They range in size from herbs of a few inches to shrubs over twelve feet high, the 12 ft giant being *Boronia molloyae* (*B. elatior*), a slender shrub of the creek margins in the forests of the South-West. A group of *Boronia* species of particular interest are those placed in the section *Heterandrae*, which includes both *B. molloyae* and *B. megastigma*. These species have only four fertile anthers instead of the normal eight and they usually possess in addition a massive stigma. The section appears to be heterogeneous as its members are independently related to species included in several different sections. This would suggest that the heterandry has arisen several times, possibly in response to a particular pollen vector not found elsewhere, for the species in this section are again restricted to the South-West Botanical Province.

The genus *Urocarpus* is represented by four species. It differs from all other members of the Boronieae in having flowers which develop in succession in clusters so that buds and fruit can be present in the same head. The Western Australian species have flowers which are 2-3 carpellate, a characteristic separating them from the species found in the other States in which the flowers are 5-carpellate.

The genera *Phebalium* and *Eriostemon* contain numerous species, many of which are notoriously difficult to designate as belonging to the one or the other genus. Each genus can, however, be divided into several sections which appear to be natural and can be clearly circumscribed. Several of these sections are independently related to other genera which suggests, as in the section *Heterandrae* in *Boronia*, that both *Phebalium* and *Eriostemon* contain a heterogeneous assemblage of species. Of particular interest in speciation is the section *Phebalium* because, although many of the species appear to be distinct if growing in isolation, when growing together they often freely hybridise. This habit appears to be of recent origin and may be due to the introduction over the past 150 years of exotic pollen vectors such as the honey bee.

The genera *Drummondita*, *Philotheca* and *Crowea* all have interesting disjunct distributions. The first genus is represented by three species in southern Western Australia and by one species in north-east Queensland. The second occurs on the western edge of the Great Victoria Desert in Western Australia and otherwise in New South Wales and Victoria. And the last consists of three species, one of which is found in the south-western corner of Western Australia, while the other two occur in eastern Victoria and New South Wales. This distribution suggests that in the past, possibly the late Tertiary era, a much wetter climate permitted a greater east-west plant migration than is now conceivable.

The endemic genera, except for *Diplolaena*, are all monotypic. One of the more outstanding of these is the genus *Rhadinotheramnus* with its species *R. euphemiae* (syn. *Nematolepis euphemiae*). It is found on some of the mountains of the south coast between Hopetoun and Israelite Bay where it grows into columnar-shaped subshrubs up to two feet high. The bilobed leaves and the pale-green flowers are tightly clustered around the normally single unbranched stem. The flower morphology and seed is of the type found in *Chorilaena* and in *Phebalium rude*, both of which are also endemic to Western Australia.

The genus *Diplolaena* is the only endemic member of the Rutaceae with more than one species. These are not, however, well-defined and some taxonomists are inclined to treat the genus as being composed of two or three very polymorphic species. *Diplolaena* contains some of the most spectacular of the Rutaceae, for its flowers, although individually practically reduced to stamens and ovary, are clustered together and surrounded by a common involucre of bracts as is found in the daisy family (Compositae). The involucre is sometimes red and the long exserted stamens are red or green. This gives the appearance of a single brightly coloured flower, from which character it has been given the name of 'native rose'. A claim for historical recognition lies in it being part of the first recorded collection made by a European of Australian plants. The collection of *Diplolaena grandiflora* was made by William Dampier in the Shark Bay area in 1699. Soon after it was described and illustrated in his book *A Voyage to New Holland etc. in the Year 1699*.

Two other monotypic endemic genera are *Muiriantha* and *Chorilaena*. The former is a small perennial with pendulous yellowish-green flowers. It is only found on some of the mountains of the Stirling Range. The genus *Chorilaena* is a shrub or small tree and is found in the forests of the heavier-rainfall areas in the South-West. It has pendulous green flowers, always in clusters of six, while the leaves resemble those of the European oak from which character it received the species name of *C. quercifolia*.

The Western Australian Rutaceae can therefore be seen to be isolated both in a geographical and plant-systematic sense. The only close link outside of Australia is through the tropical plant *Paramignya trimera* and this species would appear to be of relatively recent introduction. Apart from the genus *Geijera* the rest of the Rutaceae belong to the tribe Boronieae which is endemic to Australia, with the exception of a single species that is found in New Zealand. The affinities of the Boronieae appear to be greatest with South African genera in the tribe Diosmeae and it is interesting that the predominantly Australian families Proteaceae and Restionaceae are also found in South Africa.

### VEGETATION PROVINCES

It has been said that of all the factors which determine and control the vegetation of the earth, the climatic factor is the most important, and rainfall and temperature are the most important of the climatic elements. In Western Australia there are three distinct climatic regions. These are the tropical north with a short, hot, rainy period, the temperate south with a rainy period occurring in the coldest months, and the arid interior which has no regular rainfall pattern. The flora is remarkably different within these three areas which for this reason have been used as natural divisions of the flora. Diels referred to them as the Northern, the South-West and the Ereman Provinces. A map showing the boundaries of the three Provinces appeared in the *Western Australian Year Book*, No. 7—1968 and earlier issues.

The description of the climatic and vegetative characteristics of these Provinces and their Formations contained in the following sections is by the late C. A. Gardner, formerly Government Botanist of Western Australia.

#### Climatic Characteristics

The *Northern Province* extends over the Kimberley Division to some few miles southward from the Fitzroy River, thence contracting into a narrow coastal isthmus in the vicinity of the Eighty Mile Beach, and expanding southward to include the De Grey River and the greater part of the Fortescue system. It is the area which, lying north of the Tropic of Capricorn, receives its rain entirely in the summer months, with a seasonal rainfall during the four wettest months ranging from about seven inches in its southern portions to over forty inches in parts of the Kimberley Division, and has an annual mean maximum temperature of 90° F. or over, although during the growing season temperatures may be even higher. The season from the commencement of April until the end of October is relatively rainless.

The *South-West Province* extends from the southern end of Shark Bay in the north to Israelite Bay in the south. On the western and southern sides it is bounded by the ocean, while its inland boundary passes close to Mullewa, Morawa, Koorda, Bencubbin, Burracoppin, Hyden, Ravensthorpe and Grass Patch. It is pre-eminently the winter rainfall province which receives its maximum rainfall from May to August inclusive and, with the exception of the southern portion, experiences a seasonal drought extending from November to March or April. The average maximum temperature is less than 80° F. with much lower temperatures during the growing season.

The *Ereman Province* lies between the Northern and the South-West Provinces, and occupies approximately two-thirds of the total area of the State of Western Australia. It is intermediate in character between the other two; its rainfall is received either from extensions of summer rainfall southward (and this makes up the greater portion, especially such rainfall as is received from tropical hurricanes during the late summer months), or in the south from extensions of the winter systems, while, rarely, a general rainfall may occur throughout.

### **Vegetative Characteristics**

The *Northern Province* is essentially the savannah-steppe Province in that a herbaceous ground-covering mainly composed of grasses occurs. This varies from the rich grasslands of the Kimberley to the harsh spinifex 'steppe' of the country southward from the Fitzroy, broken only by the alluvial grassland plains of the De Grey and Fortescue districts, especially the Roebourne Plains. Scrubland as such is unknown, except to a very limited extent in the rough sandstone range country of north-west Kimberley. Forests as such do not occur and Mulga too is absent. Floristically the Province is characterised by the part played by the 'Indo-Melanesian Element' in its constitution. In places this element may predominate to the extent that amongst the trees *Eucalyptus* plays a secondary role, and deciduous trees are prominent. The grotesque Baobab is common, together with various soft-wooded trees, while the herbaceous growth is rich in members of the *Hibiscus* family and several others. With the exception of the river bank and swamp formations, most herbaceous growth is either dead or resting during the winter months.

The *South-West Province*, on the other hand, is characterised by a total absence of the Indo-Melanesian influence, and its flora bears a distinct southern or 'Antarctic' impress. Trees and shrubs predominate with a marked diminution of grasses, and there is no true grassland. The herbaceous species are of winter growth, and the plants remain dormant during the dry summer months, especially the species of *Acacia* and Casuarinaceae. The Proteaceae, which assume a minor role in the North, here hold sway, as do the Myrtaceae and Leguminosae. The principal formations are forest woodland and scrubland, with extensive tracts of sand heath. Mulga and spinifex are absent and the various salt bushes either exist as inhabitants of the physiologically dry salt pans, or occur only marginally. There is a distinctive plant architecture among the woody plants in which the effect of the dry season is apparent.

The *Ereman Province* is again intermediate. Floristically it is characterised by the 'Australian Element', recruited from northern and southern influences, and those hardy species which have arisen in response to an adverse environment. Notably there is an increase in the spacing of plants due to root competition between neighbours. The result is a series of 'open formations'; Mulga bush, consisting of leafless species of *Acacia* with resinous or stiff leaf-like phyllodes; a predominance among the shrubs of species of *Acacia*, *Cassia* and the attractive species of *Eremophila*, notable for the size and colour of their blossoms. The Northern influence is expressed most strongly by the Spinifex (*Triodia*) which is the dominant tussocky grass of the lighter and stony soils, while the Mulga occupies the more closely-grained soils, the true mulga (*Acacia aneura*) being restricted to hard-pan soils. The Southern Element is most strongly asserted in the loose red sand and around granite rocks, the former carrying those sand-loving species for which the South-West is famous (even the Blackboy extends into the heart of the Ereman) while the species of the granite rocks owe their existence to an improvement in the water content of the soil in addition to the shelter and shade provided by declivities. In the northern portions of the Province we find, where watercourses provide permanent pools and moister conditions than elsewhere, an intrusion of the Northern Element, especially in the grasses and the herbaceous flora generally. Savannah and steppe occur in the north, Mulga and spinifex steppe occupy the middle areas, while in the south we have woodland formations, with some degree of heath development. The salt soils carry distinctive associations of salt-tolerant plants in which salt bushes are predominant, and this same formation occurs on the limestone soils of the Nullarbor Plain. Forests are absent.

### **VEGETATION FORMATIONS**

Within the three large Vegetation Provinces plant species are grouped into associations which are basically dependent on soil type. The soil, within the limits of each rainfall zone, governs the amount of water available to the plants and influences the habit and character of the plant cover. Thus there are Forest Formations, Woodland Formations, Shrub Formations and many others.

### The Forest Formations of the South-West

*The Jarrah Forest.* The most important of the forest formations of the South-West is that dominated by the Jarrah (*Eucalyptus marginata*), which reaches its greatest development in the lateritic soils from the Darling Scarp eastward to the twenty-inch isohyet, although it does occur also on the sandy coastal soils. Within the forest area Jarrah forms an almost pure stand, but along watercourses Blackbutt (*Eucalyptus patens*) is common, while Marri (*Eucalyptus calophylla*) is almost always present where sandy soils occur. In the richer soils of the valleys, Wandoo (*Eucalyptus redunca* var. *elata*) and Powder Bark Wandoo (*Eucalyptus accedens*) commonly occur, the latter being usually associated with granite outcrops. The understorey of the Jarrah forest consists principally of *Banksia* and the related *Persoonia*, *Hakea* and *Dryandra*, together with the Christmas Tree (*Nuytsia floribunda*), Sheoak (*Casuarina fraserana*), Blackboy (*Xanthorrhoea preissii*) and *Zamia* (*Macrozamia riedlei*) in varying associations.

*The Karri Forest.* To the south of the Jarrah forest, in an area where the rainfall is heavier and more evenly distributed throughout the year, the Karri (*Eucalyptus diversicolor*) forms almost pure stands in certain light types of soil, mainly on the hillsides. Associated with it in the valleys is Bullich (*Eucalyptus megacarpa*), a tree which closely resembles Karri, while Jarrah and Marri occur where there are gravelly or sandy soils. The understorey consists of the Karri Sheoak (*Casuarina decussata*), Peppermint (*Agonis flexuosa*), Warren River Cedar (*Agonis juniperina*), Bull Banksia (*Banksia grandis*) and River Banksia (*Banksia verticillata*). The shrubby components are Karri Wattle (*Acacia pentadenia*) and Hazel (*Trymalium spathulatum*) with *Hovea*, *Crowea* and *Boronia* providing masses of colour in the flowering season.

*The Tingle Forest.* Around the lower reaches of the Frankland River, the Karri trees are largely replaced by Red Tingle (*Eucalyptus jacksonii*) occurring mainly on the slopes and tops of hills, and Yellow Tingle (*Eucalyptus guilfoylei*) found mainly in the valleys and low situations generally. The associated vegetation is almost identical with that of the Karri forest.

*The Wandoo Forest.* There are few large areas of true Wandoo forest in the South-West, although the tree is widely distributed in the country to the north and east of the Jarrah belt. Where the Wandoo penetrates into the Jarrah forest it is associated with an understorey which, though closely resembling that of the Jarrah forest, lacks *Persoonia*, Sheoak and Christmas Tree. In the more open stands to the east, however, it is associated with a much reduced shrubby undergrowth, and frequently with Jam (*Acacia acuminata*). Within the Wandoo forest, the Mallet species *Eucalyptus astringens* and *E. gardneri* form dense associations on stony hillsides, while in the southern portion of the forest the Swamp Yate (*Eucalyptus occidentalis*) occurs freely on the low-lying country.

*The Tuart Forest.* The Tuart (*Eucalyptus gomphocephala*) occurs in a typical forest formation between Ludlow and Busselton where it is associated with Peppermint, species of *Banksia* and a large number of herbaceous species. The formation extends northward as far as the Hill River and throughout its occurrence is restricted to limestone soils. To the north of Ludlow the forest gradually merges into a sparse woodland formation with an abundance of shrubby undergrowth and relatively few herbaceous species.

### Woodland Formations

The Woodland formations differ from the forests of the South-West in being less uniform. Whereas the forest is invariably dominated by a single species, the woodland on the other hand consists of a series of co-dominant species which occupy relatively small areas in the intricate pattern which makes up the mosaic of the Woodland formation. The principal trees are the Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*Eucalyptus salubris*), Morrel (*Eucalyptus longicornis*) and Yorrel (*Eucalyptus gracilis*). Many other species are locally dominant and the undergrowth consists of species of *Acacia*, *Grevillea*, *Hakea* and mallee forms of *Eucalyptus*. This formation is chiefly South-Western, but it extends also into the Eremaean Province where, although the tree species remain fairly constant, the undergrowth changes in character with an increasing number of the species of Poverty Bush (*Eremophila*), Saltbushes (*Atriplex*) and Bluebushes (*Kochia*).

### Shrub Formations

*The Mallee Eucalypts.* The mallee form of *Eucalyptus* is found in many districts from the west coast to the South Australian border, and it is absent only from the forest areas of the South-West. Mallee thickets reach their greatest development in the alluvial soils, but they occur in almost any type of soil. In the lighter soils they frequently occur in association with other shrubs, particularly tea tree which at times actually dominates in a sandy habitat.

*The Mulga Bush.* The Mulga bush occupies a large part of the Ereman Province. This formation extends almost without interruption from the west coast between Onslow and the Wooramel River eastward as far as New South Wales and, although its species may change, it maintains its character and identity throughout. The species of *Acacia* referred to as Mulga have a greyish resinous foliage and it is the dominance of these species, more than anything else, which gives the Mulga bush its character. Component shrubs are rather widely spaced. Another characteristic of the formation is its differential response to rain, a winter precipitation producing an immediate germination of vast numbers of annual and perennial herbs and shrubs, while summer rains promote a vigorous growth of grasses.

*The Sand Heath.* It is in the sand heath formation that the flora of the State displays the greatest number and diversity of its species, as well as the greatest development of colourful and interesting endemic forms. The most extensive sandplains are found at the northern and eastern extremities of the South-West Province, between Northampton and the Murchison River and from Ravensthorpe to Israelite Bay. They occur also on the eastern fringes of the South-West Province, and in the Ereman Province where important areas occur at Comet Vale and to the east and south of Southern Cross.

### Savannah and Steppe Formations

Except for a weak development in Jam and York Gum (*Eucalyptus loxophleba*) country in the South-West, savannah and steppe formations are restricted to the Northern and Ereman Provinces where there are the necessary climatic conditions of summer rains alternating with a dry cool winter. On river flats the dominant species is the Coolabah (*Eucalyptus microtheca*) with a grass element consisting of species of *Sorghum* and Citronella Grass (*Cymbopogon* spp.). In the sandier soils Spinifex (*Triodia* spp.) is the dominant grass, while the tree layer consists of a number of bloodwoods and the Micum tree (*Eucalyptus brevifolia*). On the basalt soils the Grey Box (*Eucalyptus tectifica*) is associated with certain cabbage gums and Kangaroo grass (*Themeda australis*). An interesting type of open savannah occurs in coastal country between the De Grey and Fitzroy Rivers and is referred to as Pindan. In this formation, several species of *Acacia* are associated with a large number of grasses both annual and perennial although in recent years the introduced Buffel Grass (*Cenchrus ciliaris*) is dominating the grass cover.

Southward from the Fitzroy River is the large area of Spinifex steppe dominated by *Triodia*, where very few trees occur. The shrubs are mainly species of *Acacia* and *Cassia*. This formation gradually merges into the more open desert country of the interior, an area which is only now becoming known botanically.

## Chapter II—continued

### Part 4—The Fauna of Western Australia

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#### DISTRIBUTION

##### Terrestrial Vertebrates

An observer who looks carefully at the fauna of a large land mass like the Australian continent will soon discover that its animals are not distributed uniformly throughout it. He will find that groups of species which are characteristic of some places are missing from others. This is because the distribution of animals results both from their response to the physical (*i.e.* ecological) conditions of their environment (and these are not uniform from place to place), and from their past histories. For example, the presence of routes along which a species could have moved in the past, and of barriers which would have made its movement from one place to another impossible, decide whether any species could have reached a particular locality by today. But whether it has persisted there until today depends upon local conditions having been suitable for it.

The relationship between the distribution of a species and the character of its environment may be demonstrated dramatically and most easily by comparing the distribution of animals with that of climate, and in particular with its components of temperature, rainfall and the time of the year at which rain falls. In Western Australia many species lie within one or other of the boundaries of two rather different climatic regions. These are the South-West with its regular and plentiful rainfall during cold winters, and the Kimberley with regular, plentiful rainfall during hot summers. The remainder of the State receives intermittent and unreliable rainfall in quantities which vary widely; some parts of this area (*e.g.* the Pilbara) receive their small amount of rain principally in the summer and other parts (*e.g.* the Nullarbor) in the winter.

An analysis of most of the Western Australian groups of vertebrate animals shows that they can be referred to three faunal assemblages characteristic of these climatic regions. These assemblages are called *faunas* and have been named by zoogeographers *Bassian* which, in this State, is the fauna characteristic of the South-West; *Torresian* which, in this State, is characteristic of the Kimberley; and *Eyrean* which is the fauna which occupies the land between. While the composition of a fauna is, generally speaking, characteristic of the area in which it occurs, the occurrence of a particular species in a fauna does not mean that it will not be found in another because each of the faunas has several elements which are sufficiently wide in their requirements for them to occur as 'foreigners' in the faunas of neighbouring regions. Examples of these are the species with predominantly Torresian populations (and apparently histories of origin) which are found today in the otherwise Eyrean fauna of the Pilbara district of the North-West; and various Eyrean species which occur in the Bassian fauna of the South-West.

Among the birds the sharpest faunal break is between the Torresian fauna of the Kimberley division and the Eyrean fauna of the Pilbara. The Kimberley is the headquarters in Western Australia of the Scrub Fowl (*Megapodius freycinet*), the Fruit Pigeons (Ptilinopinae), Lorikeets (*Trichoglossus* and *Psittenteles*), the White Cockatoo (*Cacatua galerita*) and most of the Grass Finches. The Torresian species which penetrate further southwards include the Brolga (normally only to Onslow), White-breasted Wood Swallow (to Shark Bay), and the Brown Honeyeater (right through to the South-West).

Among mammals there seem to be a few truly Torresian species in Western Australia. Examples would be the Fruit Bats or Flying Foxes (*Pteropus* and *Macroglossus*), the Little Rock Wallaby (*Paradornis concinna*), the Jungle or River Wallaby (*Macropus agilis*) and the Antelope Kangaroo (*Macropus antilopinus*). On the whole most of the mammal species which occur in the Kimberley seem to be characteristic of that part of the Eyrean fauna inhabiting the country which receives intermittent rainfall during the summer.

Even among birds, the boundary between the majority of the Eyrean species and the bulk of the Bassian species is less well defined than that which separates Eyrean and Torresian faunas as there is a good deal of overlapping. For example, the line which separates the woodland eucalypts and the mulga, the so-called 'mulga-eucalypt line', is the extreme limit of most Bassian species, though many do not range inland beyond a line connecting Geraldton, Moora, Northam and the Stirling Range. The mulga-eucalypt line separates, to quote an example, the main distributions of the Grey Kangaroo (Bassian) and the Red Kangaroo (Eyrean). This line is the northern limit of other well known Bassian species such as the Red Wattle Bird.

The South-West of the State has representatives of many well known Bassian species also found in south-eastern Australia. These include among birds, the Brush Bronzewing, White-tailed Black Cockatoo, Western Rosella, Scarlet Robin, Yellow Robin, Southern Emu-Wren, Silveryeye, White-naped Honeyeater, Western Spinebill, New Holland Honeyeater and Red-eared Firetail. Among mammals there are the Pigmy Possum, the Wambenger, the Grey Kangaroo, the Tammar Wallaby, the Brush Possum and various dunnarts (marsupial mice, *Sminthopsis*). Among frogs there are various *Crinia* and *Heleioporus* *inornatus* and *australiacus*; and fishes such as *Galaxias* and *Nannoperca*. However, there has been an extensive intermingling of Eyrean and Bassian elements in the South-West on a scale not paralleled in south-eastern Australia. In the South-West we have a blend of faunas in the sclerophyll forests which, though essentially Bassian in character, contain such Eyrean intrusives as the Purple-crowned Lorikeet, the Twentyeight Parrot, the Rufous Tree-creeper, the Western Warbler, the Banded Blue Wren and the Red-tipped Diamond-bird.

It must be recognised also that the distribution of animals that we see today may be a very recent pattern, and subject to continual fluctuation. Studies of fossil pollen in the South-West suggest there have been fluctuations in the relative abundance of Jarrah, Marri and Karri trees over the last few thousand years. Even more marked fluctuations in vegetation may have been produced by climatic changes accompanying glaciation and deglaciation in high latitudes and altitudes over the past 2 million years. Marked changes in vegetation would usually be accompanied by changes in fauna. We know that the Marsupial Wolf or Tiger (*Thylacinus*), the Koala (*Phascolarctos*) and other marsupials, some of them now extinct throughout their ranges in Australia, once lived in the South-West, and it is possible that climatic changes were responsible for their vanishing from that area of Western Australia.

Climatic alterations, on a minor scale, are constantly going on. In the past half-century, or longer, there has been a considerable change in northern Europe, Asia and America, an amelioration in some parts and a drying-up in others, with widespread effects on the distribution of animals. Something similar appears to have been taking place in Western Australia. Many dry-country bird species, of the Eyrean faunal assemblage, have made notable extensions of range into the south-west corner. These include the Galah, Little Corella, Budgerygah, Smoker Parrot, Crested Pigeon, Black-faced Woodswallow, Crested Bell-bird, Blue-and-white Wren, Black-throated Butcher-bird and Little Crow. The records of local naturalists, who keep district lists of local birds and mammals over a period of years, are very useful sources of data for plotting these changes. Frequent Museum surveys will provide more positive information.

In some cases distribution changes due to natural causes may be masked or modified through the alterations of habitat due to settlement. These habitat changes act to the detriment of woodland birds but favour open-country species (like pipits and plovers).



### Coastal Marine Fauna <sup>(1)</sup>

The nature of the coastal waters varies from the warm mangrove-lined mud flats of the north to the clean sandy bays and cool crystal-clear waters of the south. The types of coastal marine habitats depend on the range of tide, the exposure to oceanic swells, the sediments carried off the land by wind or river and some local biological activities such as reef coral or algal building. There is a gradual change in water temperature, salinity and other physical characteristics of the sea as one moves along the long Western Australian coastline of 4,350 miles; these changes reflect the nature of the adjacent water mass modified by local effects such as occur in large and small embayments, near river mouths or behind protecting headlands.

The coastal waters may be divided into several broad zones, as follows:

1. North: from the Western Australian-Northern Territory border to Cape Leveque with very broken coastline, a high tidal range, high runoff from well vegetated hinterland and no exposure to heavy oceanic swell.
2. North-north-west: from Cape Leveque to Cape Keraudren with eighty miles of low beach, a high tidal range, little regular runoff from desert sands which are blown into the sea by the 'South-East Trades'.
3. North-west: from Cape Keraudren to North West Cape with an indented coastline, moderate tidal range, irregular runoff from some mountains and desert sands.
4. West-north-west: from North West Cape to Kalbarri with some high cliffs, a deep embayment (Shark Bay), moderate tidal range, irregular low runoff from little vegetated desert hinterland and exposed to the south-west oceanic swell.
5. West-south-west: from Kalbarri to Cape Naturaliste with fairly smooth low white sandy coastline and some limestone headlands; rainfall moderate with little runoff from coastal sands, water clear; tidal range low, coast exposed to the south-west swell.
6. South-west: from Cape Naturaliste to Israelite Bay with broken headland and surf beach formations, high south-west swell exposure, low tidal range, many inlets and low-volume river discharges.
7. South-east: from Israelite Bay to the Western Australian-South Australian border with smooth coastal outline of beaches and some cliffs, modified exposure to south-west swell, low tidal range and low rainfall runoff.

Certain coastal marine areas are special in the sense that they represent either a transition (*i.e.* rapid change of character) between two adjacent zones or possess unique features found in such combinations nowhere else on the coast. Examples of such special places are the coastal waters in the Broome to Derby region, around North West Cape, in Exmouth Gulf, in Shark Bay, the Perth metropolitan beaches (Mandurah to Wanneroo), around Cape Naturaliste and around Cape Leeuwin.

The islands and reefs off the coast are also regarded as special because of their marine faunal peculiarities; for example, the Houtman Abrolhos, the Monte Bellos, the Rowley Shoals, the Ningaloo-Cardabia Barrier Reef and the Recherche Archipelago.

The marine fauna of the north coast is distinct from that of the south coast although a few species do occur in both regions. The northern fauna is regarded as part of the Indo-West Pacific fauna, and the southern fauna of Western Australia as part of the southern Australian fauna. On the west coast there are several species which are endemic to this region only. One of these is the Western Australian commercial rock lobster *Panulirus cygnus* and another is the Western Australian commercial jewfish *Glaukosoma hebraicum*.

### Fauna of Inland Waters <sup>(2)</sup>

The inland waters are of many types and possess very varied faunas. They may be divided into four main ecological groupings: (1) the rivers of the Kimberley Division; (2) the river systems of the North-West from the De Grey to the Murchison; (3) the streams,

<sup>(1)</sup> Written in collaboration with Dr R. W. George. <sup>(2)</sup> Written in collaboration with Dr E. P. Hodgkin.

swamps, and lakes of the south-west corner; and (4) the temporary waters of the dry inland represented by two widely different habitats, (i) freshwater claypans and soaks (including man-made dams) and (ii) the salt lakes.

Marked seasonality characterises river flow in the Kimberley Division because of the alternation of regular summer rain with winter drought. The river pools and many isolated springs support an extensive fauna of fish, insects, molluscs and other animals, many of which show close affinities with the aquatic fauna of Asia and the Indo-Malay Archipelago.

The rivers of the North-West from the De Grey to the Murchison flow only intermittently, and between times of flood the fauna must survive in widely separated spring-fed pools in river beds. These pools, like those at Millstream Station on the Fortescue River, are often of striking beauty. Their fauna is relatively sparse as compared with the richer assemblages in the Kimberley rivers, the most conspicuous elements being a few fish species and a freshwater tortoise (*Chelodina steindachneri*) which is confined to the region.

The permanent hill streams of the South-West have a diverse arthropod fauna. Most of these are insects but, in addition, there are several species of freshwater crayfish and freshwater mussels in slower-running parts—Marron (*Cherax tenuimanus*) occur in permanent streams of deep water; Jilgie (*C. quinquecarinatus*) in shallow permanent water; Koonac (*C. preissi*) make burrows in the mud of swamps. A species of a closely related group, the so-called 'land-crabs' (*Engaewa*), has been recently discovered in the swamps of the South-West. The freshwater mussel *Westralunio carteri* is confined to the streams of the South-West. Most rivers stagnate and may become saline in summer; they are reduced to chains of large or small pools to which the fauna is restricted. The small transparent prawn *Palaemonetes* is often abundant in these pools. Shallow permanent lakes and swamps near the coast also have a fairly varied insect fauna, among which certain species of dragonflies are particularly abundant; at times there are enormous numbers of *Daphnia* and related small crustaceans.

The inland freshwater claypans are characterised by an interesting ephemeral fauna, mainly of phyllopod Crustacea. The most conspicuous is the large shield shrimp (*Triops australiensis*) but a variety of fairy shrimps (Anostraca and Conchostraca) occur also. The eggs of these creatures survive for years in the dried mud and development is rapid when the claypans fill after occasional rains.

The most conspicuous animals in the waters of the salt lakes are the brine shrimps (*Artemia* and *Parartemia*), which at times build up to such high population densities as to attract large flocks of Banded Stilts, which breed only in certain of the inland salt lakes. The Salt Lake Snails *Coxiella* reach their greatest diversity and abundance in the South-West saline lakes.

The fishes of the inland waters are described in a subsequent section.

## THE COMPOSITION OF THE FAUNA

The fauna of Western Australia includes representatives of all major phyla of the Animal Kingdom and individuals range in size from the Blue Whale (*Balaenoptera musculus*), the largest mammal that has ever lived, to minute single-celled protozoa which cannot be seen without a microscope. No estimate can be made of the number of species, and probably the number of species of insects alone out-numbers all the rest by a comfortable margin. Here we have not attempted to describe all phyla. The vertebrates are given fairly full treatment because they are obvious and familiar animals to most of us. The insects (mostly those of economic importance) are dealt with in Part 5 of this Chapter, and the remaining phyla are treated in a few paragraphs which confine themselves to groups of interest.

### THE VERTEBRATE FAUNA

#### Mammals

Unlike the birds and reptiles, wild mammals are not frequently seen in most parts of Western Australia. This is because most of the species are small and secretive and appear

only at night. However, there are exceptions and, as any traveller in inland and northern parts of the State can attest, kangaroos of one species or another can often be seen in large numbers during daylight hours.

Most species of mammals have distinct ecological preferences which allow them to be categorised into one or other of the three main faunal groups which are described earlier in this Part under the heading *Distribution*. For example, in the kangaroo family, the Tammar Wallaby (*Macropus eugenii*), the Quokka (*Setonix brachyurus*), and the Brush Wallaby (*Macropus irma*) are found only in the South-West or on certain isolated islands off the coast. Of these, the Brush Wallaby is closely related to the South Australian Toolache Wallaby (*Macropus greyi*) and the Tammar to the Flinders Island Wallaby and the now extinct St Peter Island Wallaby of South Australia. The most familiar kangaroo of the dry country with unreliable rainfall is the Red Kangaroo or Marloo (*Megaleia rufa*), while in the summer-rainfall country of the Kimberley Division we find such species as the Jungle Kangaroo or River Wallaby (*Macropus agilis*), the Little Rock Wallaby (*Peradorcas concinna*) and the Northern Nail-tailed Wallaby or Karrabul (*Onychogalea unguifer*). In addition to the species which sort out in this convenient way, there are others which are widely distributed and in fact occur as members of all three faunal assemblages. The most familiar members of the family which do this are the Euro or Biggada (*Macropus robustus*), the Boodie (*Bettongia lesueur*), and the Rock Wallaby (*Petrogale penicillata*). Of these, the Euro may still be found anywhere in suitable local habitats from the Kimberley to the South-West and inland across the South Australian border. At one time this was true also of the Boodie and the Rock Wallaby which, however, are today unfortunately absent from much of their former range.

So far, only the kangaroos have been mentioned but, in fact, representatives of all three major divisions of the mammals (*i.e.* monotremes, marsupials and placentals) occur in the State.

The egg-laying monotremes are represented by the Echidna (*Tachyglossus aculeata*), sometimes called Spiny Anteater or Porcupine. This curious and completely inoffensive animal is not uncommon in the country around Perth and it even appears on occasions in densely-settled suburban areas. In drier districts, its diggings, made in its search for insects, are familiar around rocky hills and breakaways.

Marsupials, or pouched mammals, occur in great variety in Western Australia. The kangaroos and wallabies, already mentioned, are the herbivorous members of the group. These animals are the Australian evolutionary equivalent of the antelopes, deer, and horses of the other continents and there is often an extraordinary similarity in structure between members of the kangaroo family and these other herbivores. These similarities extend even to such details as the physiology and shape of the stomach and other organs of digestion. The reproductive systems of marsupials and their physiology have also long been of great interest to biologists because they differ from those of other animals. For example, it is now known that in the Quokka, and some other wallabies, the adults mate again immediately after the birth of the 'joey'. The embryo which is the product of this second mating does not develop immediately but is held in a dormant state in the female system. However, if the first young joey is lost from the pouch, this dormant embryo immediately begins to develop and a second joey is produced after a minimum period of time.

In Western Australia the kangaroos and wallabies are all terrestrial (there are no tree kangaroos), and even their arboreal relatives, the phalangerids, are few in number as compared with other parts of Australia. The Brush Possums, the Pigmy Possums and the Ring-tails have Western Australian representatives, but the Koalas and the striped Possums are absent, and of the four species of flying possums of eastern Australia only one (*Petaurus breviceps*) occurs in Western Australia and that only in the Kimberley Division. Although the species of possums in Western Australia are few in number, there are some unique forms which are of great interest. One of these is the rare Scaly-tailed Possum (*Wyulda*) of the Kimberley; unlike other Australian possums this animal has a hairless scaly tail and only twelve specimens of it are known. There is also the curious and rarely-seen

Honey Possum (*Tarsipes*) of the South-West. Wombats are known to have occurred in Western Australia around the turn of the century and were thought to be extinct until a small colony was rediscovered in 1965 near Caiguna in the Eucla Division.

Although the large carnivorous marsupials no longer live in the State, the smaller representatives of this group are still fairly common. There are two separate species of native-cats, a southern species (*Dasyurus geoffroii*) and a northern one (*Dasyurus hallucatus*), as well as many species of smaller carnivorous and insectivorous forms. One of the smaller members of this family, the Dibbler (*Antechinus apicalis*), one of our least-known marsupials and last recorded in 1884, was rediscovered during 1967 at Cheyne Beach near Mount Manypeaks on the south coast. Studies are being made at La Trobe University on its biology.

The remaining group of marsupials is that commonly called the bandicoot family. One of these, the Pig-footed Bandicoot (*Chaeropus ecaudatus*) is probably the State's rarest mammal, but it once occurred in the Nullarbor region where its remains have recently been discovered in caves and two living specimens of it were collected by John Gilbert in 1841 some miles to the north-east of Northam. No confirmed record has been made of the species in Western Australia since then. On the other hand another species of bandicoot, the Quenda, or Short-nosed Bandicoot (*Isodon obesulus*), is one of the commonest of marsupials. Its scratchings are common in country gardens and the little animal is often run over and found dead on roads. It lives largely on insects, and being nocturnal it is seldom seen but it is nevertheless very common in many areas in the South-West.

The third main group of mammals is that of the higher mammals or placentals. Animals of this group occur in Western Australia in addition to the marsupials and the monotremes, and it always comes as something of a surprise to visitors (who generally have a strong preconception of Australia as a land in which all but introduced mammals and the Dingo are pouched mammals and monotremes) to learn that there are many species of Western Australian native placental mammals. In fact, if the seals, whales, and Dugong which occur around our coasts be counted, the species of native placental mammals outnumber the marsupial and monotreme species.

The composition of the mammal fauna is shown in the following table.

Kinds of wild mammals	Number of species occurring in Western Australia (a)	Kinds of wild mammals	Number of species occurring in Western Australia (a)
Monotremes ....	1	Introduced placentals—	
Marsupials ....	60	Rodents ....	5
Native placentals—		Land carnivores ....	2
Bats ....	23	Ungulates (Horses, Deer, Camels, etc.) ....	9
Rodents ....	24	Rabbits ....	1 17
Marine mammals :			
Seals (b) ....	2		
Dugong ....	1		
Whales ....	22		
Land carnivores—Dingo ....	1 73	TOTAL, ALL SPECIES	151
	—		—

(a) Total numbers of species are from *A Guide to the Native Mammals of Australia* by W. D. L. Ride. (b) Only resident seals are counted. Antarctic seals are occasionally 'shipwrecked' on southern coasts but these are clearly stragglers into the area.

Within Western Australia the best-established groups of native placental mammals, i.e. the bats and rodents, are distributed in much the same ecological manner as are the marsupials; some are dry country forms like *Leggadina hermannsburgensis*, the small mouse which builds mounds of pebbles on stony ridges<sup>(3)</sup>, others are predominantly animals of the wet tropics like the majority of the Fruit-bats or Flying Foxes (*Pteropus*

(3) It is suspected that these may be dew-traps.

and *Macroglossus*), while yet others are confined to the country of reliable winter rainfall in the South-West, e.g. the Southern Bush-rat (*Rattus fuscipes*). These native placental mammals are of great zoological interest because some of them, and in particular the native rats and mice, have been here for many millions of years and closely parallel (in adaptation to our stringent ecological conditions) their relatives in similar places in other lands. Thus, we have hopping-mice (*Notomys*), like miniature kangaroos, which are very similar in appearance and habits to the jumping-mice (Zapodidae) of the American and Eurasian dry-lands, and the jerboas (Dipodidae) of Africa; but it must be emphasised that the jumping specialisations of our own hopping-mice have evolved quite independently within Australia.

Some of our native placental mammals are economically important. Until 1963 a shore-based Western Australian fishery at Carnarvon depended upon the migrating groups of Humpback Whales (*Megaptera novaeangliae*) which move along the western coast between their feeding grounds in Antarctic waters and their breeding places in the tropics. Unfortunately, immoderate exploitation of the stocks (especially the breeding stock) had so reduced the population that it was in danger of extermination and the shore-based fishery collapsed. Another whale fishery, at Albany, is dependent upon Sperm Whales (*Physeter catodon*). The catching of Southern Fur-seals (*Arctocephalus doriferus*), formerly lucrative, is now no longer permitted. The Dugong (*Dugong dugon*) was once an important source of food for the natives of the coastline from Shark Bay to the Northern Territory. The Dingo (*Canis familiaris dingo*) has probably not been in Australia for as long as the other native mammals, and may well have entered with the Australoid people who were ancestral to our present Aborigines. In some parts of the State the Dingo is a major problem to the pastoral industry because of its attacks on livestock.

The preceding table also shows that there is a large number of introduced species as well as native mammals. These are now a part of the wild mammal fauna of Western Australia and all are placentals. Some of these species are also agricultural and pastoral pests and they have become so well entrenched in the environment that there is no doubt that any discussion of the mammalian fauna of the State must take them into account and mention should be made of some of them here. Red Deer (*Cervus elephas*) occur spasmodically in the South-West around Pinjarra, Waroona and Harvey. Camels (*Camelus dromedarius*) occur in large numbers and are distributed through the Eastern Goldfields up through the Pilbara and into the Kimberley. They have been declared vermin around Laverton, Nullagine, Port Hedland, and Halls Creek. Donkeys (*Equus asinus*) have a distribution very much like that of the camel and also occur generally throughout the Kimberley. Wild goats (*Capra hircus*) are ubiquitous in dry country but are mainly concentrated in the Murchison and the North-West. A small herd of Black-buck (*Antelope cervicapra*) occurs near Geraldton. Rabbits (*Oryctolagus cuniculus*) are widespread in Western Australia but are only of economic significance south of the Murchison. They are by no means the problem that they used to be, due largely to programmes of intensive rabbit extermination. Foxes (*Vulpes vulpes*), declared vermin, are also widespread but do not commonly occur north of the De Grey River, having only been reported spasmodically from the Kimberley Division. The domestic cat run wild (*Felis catus*) occurs commonly in the bush and is an efficient predator on native fauna. It became feral in the early days of settlement and soon spread throughout the Colony. The naturalist Kearland while a member of the Calvert Scientific Exploring Expedition in 1896, recorded that 'in the desert of North-West Australia' he saw a tabby cat at least 400 miles from the nearest house. Earlier still the ornithologist Tom Carter writing in 1887 from the Carnarvon district spoke of 'the domestic cat, which is found quite wild and of a large size all through the colony'.

Examination of the composition of the older mammal fauna of Western Australia, i.e. monotremes, marsupials, bats and native rodents, as set out in the following table, reveals that only one-eighth of all species recorded from the State today appear to occur only in Western Australia. The South-West contains by far the greatest number of endemic species.





RUFOUS WHISTLER  
(*Pachycephala rufiventris*)

An outstanding, vigorous and inventive songster, the Rufous Whistler is found in many parts of Western Australia and is heard to best advantage in September and October. The nest is usually placed well out of reach in thick bush and three brownish eggs are laid. This picture shows the male feeding a lacewing to the ever-hungry chicks. The female is more plainly coloured, being ashy-brown with stripes on the paler undersurface.

Blocks by courtesy of BP

RED-CAPPED DOTTEREL  
(*Charadrius alexandrinus*)

Many dotterels, known as plovers in other countries, occur in Western Australia. Most of them migrate here from Siberia for our summer, but a few reside here, living and nesting near water, either fresh or salt. The eggs are remarkably well-camouflaged, matching perfectly the ground on which they are laid. The chick is able to run almost as soon as it hatches and, if pursued, squats down, indistinguishable from its surroundings, while the adult bird tries to draw attention away by fluttering as if with a broken wing.







#### BLACK SWANS AT LAKE MONGER

The Black Swan (*Cygnus atratus*) is especially associated with Western Australia. In January 1697 the Dutch navigator Willem de Vlaming landed on the coast, probably near the present Cottesloe, and captured three birds on a river which he named the 'Swan River'. In the following year an astonished Europe learnt of the existence of what until then was a contradiction in terms, the Black Swan.

Widely distributed in all States, it is the only species of swan native to Australia. Its black plumage is relieved by its red beak and the pure white wing quills which are seen only when it is flying.

At Lake Monger, near the heart of the city, Perth people can see these majestic birds at all times of the year.

*Photograph by J. E. Gowdy*

ENDEMISM OF NATIVE MAMMALS TO WESTERN AUSTRALIA  
(excluding marine mammals)

Group	All endemic and non- endemic species	Number of endemic species—			
		Total endemics	Endemics north of Fitzroy River	Endemics of South-West Land Division	Endemics of remainder of State
Monotremes ....	1	....	....	....	....
Native cats ....	23	5	1	2	2
Marsupial moles ....	1	....	....	....	....
Bandicoots....	7	....	....	....	....
Possums ....	8	2	1	1	....
Wombats ....	1	....	....	....	....
Kangaroos and Wallabies ....	20	4	....	3	1
Rats ....	24	3	....	2	1
Bats ....	23	....	....	....	....
Dingo ....	1	....	....	....	....
Totals ....	109	14	2	8	4

### Birds

The bird fauna of Western Australia consists of a selection of the species occurring in eastern Australia, with only a very minor development of endemic forms. All of these latter, except one (the Western Australian King Parrot, *Purpureicephalus spurius*), have a close and obvious affinity to other Australian forms. The quantitative relationship of the Western Australian bird fauna to that of Australia as a whole is indicated in the following table, which has been prepared on an ecological basis.

	Number of breeding species		Number of non-breeding visiting migratory species	
	Western Australia	Australia	Western Australia	Australia
Land birds ....	307	499	6	8
Inland water birds ....	51	52	33	42
Sea birds ....	25	38	33	55
Total ....	383	589	72	105

Representatives of most of the families and genera of Australian birds occur in this State. Notable absentees include the Cassowary (*Casuarius casuarius*), Brush Turkey (*Alectura lathamii*), several of the fruit-pigeons, the Crimson Rosella (*Platycercus elegans*), Lyre-bird (*Menura novae-hollandiae*), several honeyeaters including the Regent (*Zanthomiza phrygia*), Apostle-bird (*Struthidea cinerea*), Cat-birds (*Ailuroedus*), Satin Bower-bird (*Ptilonorhynchus violaceus*) and Rifle-birds (*Ptiloris*).

Space is insufficient to detail all the forms occurring in Western Australia. Mention may be made only of some distinctive species and groups which are common and widely distributed.

The Emu (*Dromaius novae-hollandiae*) is still numerous all over the State and is occasionally encountered in the Darling Range near Perth. Australia's only breeding species of penguin, the Fairy Penguin (*Eudyptula minor*) nests on islands off the southern and south-western coasts as far north as Carnac near Fremantle. The Mallee-fowl or Gnow (*Leipoa ocellata*) is still plentiful and, after a period of decline during which its disappearance was feared, it is now increasing in abundance. All of the widespread

species of Australian quails occur but owing probably to the scarcity of natural grasses in the south are not individually very numerous. Among the pigeons two species have shown notable recoveries in population strength. After a long period of scarcity the Common Bronzewing (*Phaps chalcoptera*) began a cycle of increase about 1936 and is still very abundant. The rare Flock Pigeon (*Histriophaps histrionica*) of the more arid country of the North-West and the far North has declined all over Australia and had not been recorded in this State since 1927 until 1958 when considerable flocks were observed in the Hamersley Range and the Fortescue River country. It has also reappeared in parts of the Kimberley Division.

A very distinctive member of the rail family is the Black-tailed Native Hen or Gallinule (*Tribonyx ventralis*). It is a creature of the drier country but is subject to violent fluctuations in numbers, when it is liable to invade the South-West in great strength. A famous occasion was in May 1833 when it overran the settlers' fields and gardens around Perth and did considerable damage to the crops. Similar irruptions took place in 1853, 1886, 1897 and 1919. Later invasions, such as those in 1952 and 1964, have been on a much more modest scale. Of the three Australian grebes the most plentiful is the Hoary-headed Grebe (*Podiceps poliocephalus*) which assembles in the winter in big flocks on the southern estuaries, including that of the Swan River.

In the petrel group there are five breeding species in local waters. The most numerous is one of the mutton-birds, the Wedge-tailed Shearwater (*Puffinus pacificus*) which nests on most islands between Carnac in the south and Sable Island, in the Dampier Archipelago, in the north. A second mutton-bird, the Fleishy-footed Shearwater (*P. carneipes*) nests between Cape Leeuwin and the Archipelago of the Recherche; it is a migratory species and in the winter months migrates to the north-western sector of the Indian Ocean. A similar trans-equatorial migrant is the White-faced Storm-petrel (*Pelagodroma marina*), a diminutive form rarely observed at sea. It nests often in vast aggregations on islands off the south coast and as far north as the Abrolhos. All of these species nest in the spring and summer months. The remaining two breed in the winter. The Great-winged Petrel (*Pterodroma macroptera*) shares the nesting islands off the south coast with the Fleishy-footed Shearwater in a sort of 'Box and Cox' relationship. The black and white Little Shearwater (*Puffinus assimilis*) has a wider nesting range, from the Recherche to as far north as the Abrolhos; in former times it nested at Parrakeet Island off Rottneet Island. In the winter months some twenty-two species of southern-breeding petrels visit local seas. They vary in size from the little Wilson Storm-petrel (*Oceanites oceanicus*), barely larger than a swallow, to the great Wandering Albatross (*Diomedea exulans*). The Wilson Storm-petrel 'winters' all along the Western Australian coast to the tropics and is a familiar sight around fishing boats in Shark Bay. The most common of the albatrosses is the Yellow-nosed Albatross (*Diomedea chlororhynchus*) and may be seen as far north as Point Cloates. The most familiar of these visitors is the dusky Giant Petrel (*Macronectes giganteus*). Ringing experiments have demonstrated that the birds seen here are first-year individuals making circumpolar flights round the Southern Hemisphere; marked birds found in the South-West had been ringed a few months previously in their nests at Heard Island, Macquarie Island, and islands in the South Orkneys in the South Atlantic.

All of the five species of Australian cormorants or shags occur locally. Despite complaints of their depredations on commercially important fish, investigations have cleared the birds of blame, though one species, the Black Cormorant (*Phalacrocorax carbo*), specifically identical with the Cormorant of Europe, does occasionally include edible fish in its diet. One marine species, the Pied Cormorant (*P. varius*), which enters the Swan River estuary and Peel Inlet, is mainly responsible for the guano deposits on the coastal islands. Deposits at Shark Bay were commercially exploited in the last century and at one stage, in 1850, a detachment of troops was stationed at The Quoin Bluff, Dirk Hartogs Island, to ensure the collection of royalties. Pelicans in Western Australia, unlike those in eastern Australia, breed only on coastal islands and not on inland waters. Until recently the nearest breeding place to Perth, and presumably the origin of most of the Swan River Pelicans, was Pelican Island, Shark Bay. However, since 1962 a breeding colony has become established at Peel Inlet, Mandurah.

Fourteen species of terns are recorded for the southern parts of the State and three more for the Kimberley Division. Three of the seventeen are migrants from the Northern Hemisphere and ringed individuals of the European Common Tern (*Sterna hirundo*) and the Arctic Tern (*S. macrura*), marked in northern Europe, have been recovered near Fremantle. These birds must have reached our coast via the Cape of Good Hope. The Silver Gull (*Larus novae-hollandiae*) is noteworthy for having two breeding seasons in the southern part of the State. On the islands at Safety Bay, for example, there is an egg-laying peak in the autumn and another in the spring.

The numerous Order of wading or shore-birds (sandpipers, dotterels, and plovers) includes a few locally-breeding species but the majority are migrants from the Northern Hemisphere, where they breed in the tundra zone of northern Asia. Though they frequent ocean beaches and estuaries, as well as swamps and lakes, they are listed in the category of 'inland water birds' in the table on page 65. Some twenty-five species of these birds, commonly called 'snipe' (though the true Snipe of eastern Australia, *Gallinago hardwickii*, does not occur in this State) migrate to Western Australia. In addition there are sixteen species of this Order which breed in Australia. One of them, the Red-capped Dotterel (*Charadrius alexandrinus*), is virtually identical with the rare Kentish Plover of England. Here it is very common and nests at Pelican Point on the Swan River. Another local breeder is the remarkable Banded Stilt or Rottneest Snipe (*Cladorhynchus leucocephalus*) which is an attractive inhabitant of the salt lakes of Rottneest Island. However, it nests only on the inland salt lakes. The nesting habits remained long unknown until colonies were discovered at Lake Grace and Lake King in 1930.

The Australian Bustard ('Wild Turkey', *Eupodotis australis*) is a magnificent bird which has been largely exterminated by shooters over much of south-eastern Australia and in the developed South-West of this State. It is not uncommon in sparsely-settled areas and individuals occasionally appear on the open coastal country quite near Perth. It has recently been demonstrated by ringing that the Straw-necked Ibis ranges between south-western Australia and northern and eastern Australia. Fledglings marked in the nests at Muchea have later been taken in the North-West, the Kimberley Division, Arnhem Land and near Orange (New South Wales).

The Brolga (*Grus rubicunda*) is a northern bird normally found as far south as Onslow, but some individuals may wander into the outer parts of the South-West as occurred in 1952. In the heron family a new bird has been added to the State list—the Cattle Egret (*Bubulcus ibis*), which appears to have colonised northern Australia from Indonesia and has now spread over much of eastern and Western Australia.

There are eighteen species of swans and ducks occurring in the State, one of the most remarkable, perhaps, being the Cape Barren Goose, which is now restricted to the islands of the Recherche Archipelago. Recent leg-ringing experiments have shown that the common and widespread Grey Teal (*Anas gibberifrons*) wanders indiscriminately all over Australia, its movements being influenced by availability of surface waters.

The State is also well provided with hawks and eagles, twenty-four species being found within its limits. Most are harmless economically and the few that do take chickens and lambs are not serious depredators, though there is controversy on the role of the Wedge-tailed Eagle (*Aquila audax*) which is, however, classified by the Agriculture Protection Board as vermin in certain districts in the central and north-west portions of the State.

There are not as many species of the parrot group in Western Australia as there are in eastern Australia but one species, the Western Australian King Parrot or Red-capped Parrot (*Purpureicephalus spurius*), is restricted to the South-West and has no near relatives elsewhere. The Twentyeight Parrot is a form of the Port Lincoln Parrot (*Barnardius zonarius*) and is common almost everywhere, being regularly present in King's Park, a natural reserve adjacent to the City of Perth.

The Kookaburra (*Dacelo gigas*), so common in the forests of the South-West, is not a Western Australian native but was introduced from eastern Australia by the Acclimatisation Board during January 1897. A similar species, however, the Blue-winged Kooka-

burra (*D. leachii*) occurs in the north, as far south as the Wooramel River. The Rainbow-bird (*Merops ornatus*) in the south is a strict migrant, arriving regularly in the first week in October. Local birds migrate to the north of the State, the wintering area being from the Gascoyne River northward, but some individuals cross the Timor Sea to the Indonesian islands. There are eleven cuckoo species in our area, the commonest being the Pallid Cuckoo (*Cuculus pallidus*) whose plaintive insistent note is heard soon after the winter rains set in.

In the great group of passerines, or song-birds (Order Passeriformes), the most celebrated is the Noisy Scrub-bird (*Atrichornis clamosus*), a primitive almost-flightless bird which until recently was believed to be the only Australian bird which had become extinct since white settlement. The last specimen was collected by the ornithologist A. J. Campbell at Torbay in 1889, but late in 1961 a surviving population was discovered at Two Peoples Bay east of Albany. Space is insufficient to deal in any detail with other members of this large Order. Throughout the State there are 172 species, of which 95 occur in the southern, settled parts and at least 33 are found in King's Park. A distinctive robin, the White-breasted Robin (*Eopsaltria georgiana*), occurs in the South-West. It is a relative of the yellow robins and is found in the dense coastal and forest thickets from Geraldton southward and east to Albany and the Porongurups. The Western Warbler (*Gerygone fusca*) is a sweet-voiced songster which may be heard in the street trees of Perth, the only Australian capital city in which it lives; in the other States the bird is an inland species. Another distinction of the Perth metropolitan area is that four species of blue-wren, a greater number of species than in the environs of any other capital city, have been noted there. One species, the Red-winged Wren (*Malurus elegans*), which used to live near the city, disappeared when Herdsman Lake was drained. The remaining species are the Splendid Wren (*Malurus splendens*), occasionally still seen in the University grounds; the Blue-and-white Wren (*Malurus leuconotus*) in the coastal dune scrubs, and the Causeway and Pelican Point samphire flats; and the Variegated Wren (*Malurus lamberti*) in the dune thickets. Honeyeaters are numerous, the largest, the Red Wattle-bird (*Anthochaera carunculata*), being a familiar bird in metropolitan streets and gardens. Most of the grassfinches are restricted to the Kimberley Division, where ten species are found. However, one of them, the widespread Zebra Finch (*Taeniopygia castanotis*), nests as near to Perth as Northam and York. Two bower-birds occur in the State. The Great Bower-bird (*Chlamydera nuchalis*) is confined to the Kimberley Division, but the Spotted Bower-bird (*C. maculata*) is found in the North-West and ranges south to the East Murchison country and Malcolm in the Eastern Goldfields.

In contrast with all other Australian States there are very few species of exotic birds established in Western Australia. (The same is true of the Northern Territory.) In the towns of the South-West two turtledoves are plentiful, the Indian (*Streptopelia chinensis*) and the Senegal (*S. senegalensis*). The Goldfinch (*Carduelis carduelis*), an escapee from aviaries, breeds freely in the Perth metropolitan area and around Albany. Recently another cage-bird escapee, the Red-browed Finch (*Aegintha temporalis*), an eastern Australian species, has established itself east of Kalamunda in the Darling Range near Perth. The Indian or Ceylon Crow (*Corvus splendens*) repeatedly arrives at Fremantle on ships from the Orient but the vigilance of officers of the Department of Agriculture and port officials has led to the successful eradication of the unwanted immigrants. The House Sparrow (*Passer domesticus*) has been similarly kept at bay at Fremantle. This species did, however, make a temporary colonisation, from South Australia, in the vicinity of Eucla and Mundrabilla in 1917-18 but it failed to make any headway and disappeared from that sector.

### Reptiles

In Western Australia the reptiles are represented by three major zoological groups or Orders. These are the Chelonia (four marine species of turtles and six of freshwater tortoises), Crocodilia (two of crocodiles) and the Squamata (sixty-two species of snakes and 159 of lizards).

The freshwater tortoises of Western Australia, like those of the rest of the continent, belong to the ancient group of side-necked tortoises. In most other parts of the world tortoises retract their heads straight backwards bending their necks in a vertical S-shaped curve. Australian tortoises, and certain others from South America, bend their necks sideways; this is believed to be an ancient character. Although the species of Western Australian tortoises are few, they are of great interest and their distributions are far from well understood. This is especially true of the species inhabiting the Kimberley. Freshwater tortoises do not seem to fall into simple faunal zone classifications. The common long-necked tortoise of the South-West, *Chelodina oblonga*, is closely related to the long-necked tortoise of the Kimberley Division, *Chelodina rugosa*. However, neither of the short-necked tortoises of the Kimberley Division, *Emydura australis* and *Elseya dentata*, is represented in the South-West. The river systems from the Irwin, in the Northern Agricultural Division to the De Grey in the northern Pilbara, have their own tortoise (*Chelodina steindachneri*), while a highly specialised short-necked tortoise (*Pseudemydura umbrina*) is apparently confined to a few square miles of winter swamps between Upper Swan and Bullsbrook to the north of Perth. Because of its vulnerability to extinction this last species is rigidly protected.

Marine chelonians also occur in large numbers around the coasts. The Green Turtle (*Chelonia mydas*), the species which is used for soup making, comes ashore to lay its eggs on the northern beaches. Attempts are made from time to time to exploit this species commercially; two turtle-fishing boats are at present licensed to operate off the North-West coast.

There are two species of crocodiles in Western Australia. One is the harmless fish-eating Freshwater Crocodile (*Crocodylus johnstoni*) and the other the dangerous Salt-water or Estuarine Crocodile (*C. porosus*). Both species are confined to northern parts of the State and both are now protected by law. Until recently the latter formed the basis of a lucrative trade in hides.

Snakes and lizards are common and widespread throughout the State, and in numbers of obvious individuals they are probably surpassed among the vertebrates only by the birds. In the South-West, Bobtails (*Trachysaurus rugosus*) can often be seen crossing the roads at most times of the year, while the walker among coastal sand dunes on warm days cannot avoid noticing innumerable small dragon-lizards which move away from in front of him. In the southern part of the State the largest lizard which is at all common is the Goanna (*Varanus gouldi*). These are frequently between three and four feet in length. In northern areas the Perentie (*Varanus giganteus*) exceeds it in size. A few species are confined to the South-West and of these the most interesting are Mueller's Snake (*Rhinophlocephalus bicolor*), the Little Brown Snake (*Elapognathus minor*), the Black-Striped Snake (*Vermicella calonota*) and the Slender Snake Lizard (*Pletholax gracilis*) which is also one of our rarest species of lizard. An Eyrean species which never ceases to surprise the visitor is the terrible-looking Mountain Devil (*Moloch horridus*). This lizard is actually one of the most gentle and harmless of animals and lives exclusively on ants.

The snake fauna of the State is diverse and, like that of other parts of Australia, contains many venomous species, the best known being the Tiger Snake (*Notechis scutatus*), the Dugite (*Demansia affinis*), the Gwardar (*D. nuchalis*), the Death Adders (*Acanthophis antarcticus* and *A. pyrrhus*) and the Mulga Snake (*Pseudechis australis*).

The snakes and lizards are well described in Glauert's *Handbook of the Snakes of Western Australia* and *Handbook of the Lizards of Western Australia* (see bibliography at the end of this Part).

Because of the great distance of the Kimberley Division from centres of scientific research, insufficient is known of its snakes and lizards. As in the case of some of the smaller mammals, some endemic species of lizards have been described, but until much more scientific collecting and research has been done it will not be possible to evaluate such apparently-unique species. Some Kimberley species of lizard, e.g. the Frilled Lizard (*Chlamydosaurus kingi*), through being commonly illustrated in journals because of their bizarre appearance, have become familiar to the public.

### Amphibia<sup>(4)</sup>

Unlike the other continents Australia has no newts or salamanders (Urodela) or worm-like gymnophionans (Apoda). However, frogs (Anura) are abundant.

The frogs of Western Australia fall into the same grouping (Bassian, Eyrean and Torresian) which was mentioned in the section on mammals. However, they lack the diversity of genera and species shown by other groups and only ten genera with about thirty species are known from south of the Tropic of Capricorn. Of these, two genera, *Metacrinia* and *Myobatrachus*, each with one species, are restricted to the South-West. Most of the other kinds of frogs are distinct from, but related to, species found elsewhere in Australia.

Since most of Western Australia is exceedingly dry it is of interest to note that frogs are common in these arid regions. Those species of *Heleioporus* which occupy marginal-desert habitats overcome drought conditions by burrowing into the damp sub-soil. However, the arid-country species of *Neobatrachus* frequent clay soil where deep burrows are impossible and water can be lost. These species show no special capacity to endure greater water loss than *Heleioporus* species, but they do display an exceptional capacity for rapid replacement of water when water is present, as for example after thunderstorms. The water-holding frog, *Cyclorana platycephalus*, is found in inland and northern parts of the State. All 'desert' species retain an aquatic larval life, but this is much shorter than that of species in the well-watered parts of the State. The only species lacking aquatic larval development occur in the wetter South-West; these are *Myobatrachus gouldii*, *Metacrinia nichollsi* and *Crinia rosea*. *Myobatrachus gouldii* is the only species which exhibits any strong dietary preference and eats only termites (Isoptera).

### Freshwater Fishes

The truly freshwater fish fauna of the southern part of the State is, by eastern Australian standards, an impoverished one and the species, with the exception of the freshwater catfish ('cobbler'), are diminutive in size. Most of the species are representatives of eastern Australian genera, such as the Pygmy Perch (*Nannoperca vittata*), Mountain Trout (*Galaxias truttaceus*), Black-striped Minnow (*G. pusillus*), and the Native Minnow (*G. occidentalis*). Others are more distinctive, with no near relatives in eastern Australia, such as the Nightfish (*Bostockia porosa*), the King River Perchlet (*Nannatherina balstoni*) and the newly-described scaled galaxiid (*Lepidogalaxias salamandroides*). There are several gobies (*Glossogobius suppositus* and *Lizagobius olorum*) and Hardyheads (including *Atherinosoma edelensis*, *A. rockinghamensis*, *A. elongata* and *Craterocephalus cuneiceps*). A lamprey (*Geotria australis*) ascends the rivers to breed and has been recorded north to the Swan River system, but is more abundant in the streams emptying on the south coast. An eel (*Anguilla australis*) has been recorded from the South-West but it is not known whether it is native to the area or has been introduced.

The north-western rivers have a richer fish fauna. The most widespread is the Spangled Perch (*Therapon unicolor*), a useful food fish which occurs in all rivers south to the Murchison. A large catfish (*Arius australis*) reaching 5 lb in weight, occurs in the systems south to the Fortescue. The Rainbow Fish (*Melanotaenia*), popular with aquarists occurs in the river systems of the Pilbara and the Kimberley. The remarkable Blind Gudgeon (*Milyeringa veritas*) and blind eel (*Anommatophasma candidum*) occur in wells and subterranean channels in the North West Cape area. The Kimberley Division has an even larger series of freshwater fishes. These include a catfish (*Neosilurus brevidorsalis*), various Bony Bream (*Fluvialosa*), various perch-like fishes (*Therapon*, *Acanthoperca*), Gudgeons (*Carrassioops*) and two freshwater saw-fishes (*Pristis clavata* and *Pristiopsis leichhardti*). There is also a freshwater eel (*Anquilla bicolor*) in these far northern waters.

### Marine Fishes<sup>(5)</sup>

The marine fish fauna of Western Australia is probably richer in species than that of any other Australian State. This is because the fish of the northern part of the State's very long coastline belong to the rich tropical Indo-Pacific fauna, while its southern fauna

(<sup>4</sup>) Written in collaboration with Prof. A. R. Main. (<sup>5</sup>) Contributed by Dr G. F. Mees.

is a temperate one which includes many elements peculiar to Australian waters. The most up-to-date list of the species of Western Australian fish, published in 1948, enumerates 740 species, but since that time collecting has revealed about 120 more. Even so, this figure is still far short of the total number which, it is suspected, will eventually be found to be in the neighbourhood of 2,000.

From this it can be seen that there is much to be learnt about fish of Western Australia but it is probable that only a few of these species are confined to Western Australian waters. At present it seems that most of the fish occurring in the tropical part of the State are widely distributed, and species often range throughout the whole of the tropical Indian and Pacific Oceans, while the species which are found along the south coast usually occur also in the waters of South Australia, Victoria, Tasmania and southern New South Wales.

Between Cape Leeuwin and Shark Bay both northern and southern elements are found, the tropical element dominating as far south as the Houtman Abrolhos.

In addition to the widely-distributed tropical and southern elements, there are a number of species, between thirty and forty, which seem to be peculiar to Western Australia. It is necessary to be cautious here for two reasons. Firstly because the Indo-Pacific fish fauna is, as a whole, poorly known and some fish, at present only recorded from Western Australia, may actually have wider ranges. Secondly, our classification of fishes is still imperfect so that fishes which we regard as endemic to Western Australia may be known from some other region, but under different names. On the other hand there can be no doubt that at least a proportion of these species which we now believe to be endemic will prove to be confined to Western Australian waters.

In the following very incomplete review, a number of the more important and interesting families and species are listed.

Of the major groups, the Elasmobranchii (sharks and rays) are richly represented, with nearly eighty species, of which the most familiar are the Port Jackson Shark (*Heterodontus portusjacksoni*), the Carpet Shark or Wobbegong (*Orectolobus maculatus*) and the shark known locally as the Swan River Whaler (*Carcharhinus*), which can be caught in the Swan River as far upstream as the Causeway. Its specific identity has not yet been established beyond doubt, but it is probably widely distributed. The foregoing species are regarded as harmless to man; of the dangerous species, the Tiger, the Whaler and the White Pointer are perhaps the best known. Four fatalities from shark attack have been recorded for Western Australia (in 1803, 1923, 1925 and 1967) and a few people are known to have been maimed. It may be said, however, that in Western Australia the danger of shark attack is low.

Most major families of bony fishes are represented, but only a number of the more interesting or familiar species can be mentioned here.

There are about ten species of true herring (Clupeidae), one of which, the Pilchard (*Sardinops neopilchardus*) will in future probably become of economic importance. The rather similar-looking *Amblygaster postera* seems to be confined to Western Australia. The State is particularly rich in sea-horses and pipe fishes, there being some twenty-five species. The most familiar of these is perhaps the leafy sea-horse (*Phyllopteryx foliatus*) which is often found on the beaches after storms. The so-called Sand Shark or Rat Fish (*Gonorhynchus greyi*), a peculiar fish and the sole representative of its family, deserves mention; it is fairly common off sandy coasts of the South-West. Though eels are represented by several families and over twenty species, only three are common in the South-West; the Snake Eel (*Ophisurus serpens*), a slender golden brown eel inhabiting sandy estuaries, which is often taken for a snake and referred to as the water snake; Woodward's Eel (*Gymnothorax woodwardi*), found on rocky shores, yellowish green with a network of grey lines; and the Conger Eel (*Conger wilsoni*), which normally is dark brown in colour.

Garfishes (Hemiramphidae) are common. Of their relatives the Long Toms (Belontiidae), only *Belone ciconia* is common in the South-West the others being more tropical in distribution, though one of the northern species, *Belone hians*, has been found as far south as Rottnest Island.



Silversides and hardyheads (Atherinidae) are well represented and so are mullets (Mugilidae). Some representatives of these groups have been mentioned in the preceding section, which deals with freshwater fishes.

The family Serranidae, known as groper, rock cod, etc. are well represented by nearly thirty species. The best known is the North-west Groper (*Epinephelus tauvina*) which attains a length of more than seven feet. Most species have a very wide, mainly tropical, distribution, but *Epinephelus rankini* is only known from a restricted area round Onslow and must be looked upon as endemic to Western Australia. In temperate waters the preceding family is more or less replaced by the related Hypoplectrididae.

Some small families, like the Australian Salmon (Arripidae), Whiting (Sillaginidae) and Snappers (Sparidae) are of great economic importance, though there are only a few species. On the other hand the Skipjacks (Carangidae) are the largest family of the State and comprise some thirty species. Another group which are also called Snappers (Lutjanidae) is prominent in the tropical part of the State. These are often referred to as North-west Snappers and should not be confused with the southern Snapper (*Chrysophrys unicolor*) which belongs to the Sparidae.

Coral fishes (Chaetodontidae) are richly represented, mainly along reefs in the tropics, but a number of species come down to the Albroh Islands, and some even near to Perth. Most species have a very wide distribution in the Indo-Pacific, but one, *Chaetodon assarius*, has not been found outside Western Australia.

The Mackerel family (Scombridae), which includes mackerel, Spanish mackerel, tuna, bonito and albacore, is important both in tropical and temperate waters. The related marlins and swordfishes, well known to sporting fishermen, also occur in these waters.

Flatfishes (Heterosomata) occur in a great variety of species, and the same can be said of Parrotfishes and Wrasses (Scaridae and Labridae). All these groups are as yet very insufficiently known.

The stargazers and stonelifters are sluggish bottom fishes that deserve mention because of their unusual shape. One, *Ichthyoscopus barbatus*, occurs off the south-west coast and also in South Australia, and is regularly caught by anglers. Another species, *Ichthyoscopus insperatus*, a common fish of the north-west coast from Broome to Shark Bay, seems to be confined to Western Australia. The dragonets (Callionymidae), of which nine species have been recorded, are smaller, but their pretty appearance attracts attention, and one species, *Dactylopus dactylopus*, widely distributed in the Indo-Pacific, is regularly found off sandy beaches as far south as Rockingham.

Blennies (Blenniidae), weedfish (Clinidae), and gobies (Gobiidae) are small fishes of which there are many species; blennies are most plentiful in rockpools and on reefs in the tropics, while gobies are also found on sandy bottoms.

There are some twenty species of scorpion fishes known from the State, the most familiar of which are *Scorpaena sumptuosa* in the south, and the small *Scorpaena bynoensis* in the north; the first-mentioned species is also interesting in that, though it has been known for almost a century, it has never been recorded from outside Western Australia. Of the closely-related Synancejidae, the feared stone fish, three species are known from the State, one of which, *Erosa daruma*, is apparently restricted to the North-West and is known from but two specimens. A related species occurs in Queensland and Japan.

Flatheads (Platycephalidae) are common in the temperate part of the State.

An interesting family is that of the angler fishes or toad fishes (Antennariidae). Their curious shape with the leg-like pectoral fins always excites attention. There are about a dozen species, two of which are endemic to the State. One of these is *Echinophryne glauerti* which is occasionally found washed up on City Beach.

Leatherjackets (Monacanthidae) are a large group distinguished by the rough leathery skin and a single large erectile spine on the nape. Some species, like *Chaetoderma penicilligera*, are common and of attractive appearance.

Of the blowfish family, the common Blowie (*Tetraodon (Spheroides) pleurogramma*) needs special mention; it is extremely plentiful off the coast at Fremantle and in the Swan River estuary. It is poisonous to eat and is greatly disliked by anglers who find that it greedily takes their bait. Fishes of this family contain a poisonous substance called Tetraodontoxin and the celebrated navigator Captain James Cook was very ill after eating a blowfish in the course of a voyage in the Pacific in 1774. Boxfishes (Ostraciontidae) and porcupine fishes (Diodontidae) are related groups, each represented by a number of species.

Further information about the commercial fishes in Western Australian waters is given in the Fisheries section of Chapter VIII, Part 1—*Primary Production* where the principal species of edible fish are listed together with the quantities of each species caught. The section also contains additional information relating to whaling (see *Mammals* earlier in this Part).

#### THE INVERTEBRATE FAUNA<sup>(6)</sup>

The invertebrate fauna of Western Australia is large and varied, as one would expect in a third of a continent which extends from temperate to tropical zones and includes both coastal and desert areas. Rather than spread our descriptions too thinly over this enormous field we have restricted ourselves to a brief summary of the position in relation to a few selected groups in which work is being actively carried out.

Several invertebrate species are commercially exploited here, the most important being the marine crayfish or rock lobster (*Panulirus cygnus*) which supports an extensive export fishery. Others commercially important include several species of octopus and squid, the Blue Swimming Crab ('Blue Manna', *Portunus pelagicus*) and several species of prawns. Pearl-shell was fairly extensively fished along the north-west coast but this fishery has now declined.

A summary of the terrestrial and freshwater invertebrate fauna and their ecology is given in Main's *Guide for Naturalists* (1968).

#### Echinodermata

The echinoderms of Western Australia have been shown by Clark (1946) to be derived from the Indo-Malayan fauna. Most species of northern Australia are widely distributed in the Indian Ocean and Malayan archipelago, while as one passes southward these decrease in proportion to the endemic species until on the south-western coast nearly nine-tenths of the echinoderms are endemic to the region.

All five groups of echinoderms, feather stars (Crinoidea), sea stars (Asteroidea), brittle stars (Ophiuroidea), sea urchins (Echinoidea), and sea cucumbers (Holothuroidea) are well represented. Eighty-five species of sea stars and fifty-five species of sea urchins are recorded from Western Australia including the continental shelf. The other groups have smaller numbers of species.

On the rocky and sandy shores of the South-West about twenty species of sea stars are common in shallow water. One of the most abundant is *Coscinasterias calamaria* which is widely distributed in the Southern Hemisphere. Sea urchins are represented by about twelve common species; on rocky shores the most abundant of these is *Helicidaris erythrogramma* which has a southern Australian distribution.

In Cockburn Sound, between Garden Island and the mainland south of Fremantle, an abundant but specialised echinoderm fauna exists. This consists mainly of the small sea urchin (*Temnopleurus michaelsoni*), the biscuit urchin (*Peronella lesueuri*), the heart urchin (*Echinocardium cordatum*) and the sea star (*Stellaster inspinosus*). On the south coast, King George Sound has long been known as a rich collecting ground for echinoderms, but the fauna of other bays and inlets is much less well known.

(6) Written with assistance from Drs R. W. George, E. P. Hodgkin, Barbara Y. Main and B. R. Wilson, Mr G. W. Kendrick, and Mrs L. Marsh.

Little is known of the echinoderm fauna of the northern coasts, and almost all that we do know comes from the publications of H. L. Clark (see bibliography at the end of this Part) who collected extensively in the Broome area and made smaller collections in other places. Near Broome, a wide variety of echinoderms was collected in his dredges and along the shore.

### Mollusca

The molluscan fauna of the Western Australian coastline has not been recently catalogued, but from the area within thirty-five miles of Fremantle 270 species of bivalves (Pelecypoda), and univalves (Gastropoda) are recorded. The smaller groups, chitons (Amphineura), octopus and cuttlefish (Cephalopoda) and tusk shells (Scaphopoda) are also represented.

Molluscs dominate the intertidal rocks of the west coast, especially chitons, periwinkles, and limpets; the limpets range from the very large *Patellanax laticostata* to the small *Notoacmea onychitis*. On the north-western coast, rock oysters (*Crassostrea tuberculata*) and barnacles take the place of limpets intertidally. The oysters are fished commercially for food on a small scale in places where extensive beds are uncovered at low tide.

Bivalves occur mainly on sandy and muddy bottoms such as those of Cockburn Sound and King George Sound, and along the north-western coast. They are less plentiful on the unstable sandy shores of the open western coast. The pearl-shell fishery of north-west Australia is based on several species, mainly the Black-lipped Pearl-shell (*Pinctada margaritifera*) and the Silver-lip (*P. maxima*). The Shark Bay Pearl-shell (*P. carchariarium*) is abundant in Shark Bay and has been fished there commercially. Commercial beds of the scallop *Amusium balloti* and the mussel *Mytilus edulis planulatus* also occur in Western Australian waters but only sporadic, small-scale attempts to exploit them have been made.

Many species of cowrie shells occur on the rocky shores of the north-west coast while a few species such as *Zoila friendii* and *Austrocyprea reevei* are confined to the south-western corner of the State. The north-west coast also has many endemic species of volute shells such as *Volutoconus hargraevsi*, *Amoria macandrewi* and *Cymbiola nivosa*.

Two kinds of gastropods without visible shells are conspicuous members of the marine fauna off Fremantle. One is the large sea-hare (*Aplysia gigantea*) with a small internal shell; it may be cast up on the beaches in large numbers after winter storms. The other is a nudibranch, with no shell at all, the colourful *Glossodoris westraliensis*, well known to visitors to Rottnest Island.

The non-marine molluscan fauna (terrestrial and aquatic) is quite diverse. Conspicuous in the South-West are species of the pulmonate genus *Bothriembryon*, which are adapted to a wide variety of habitats from cool temperate rain forest to arid steppe. In the Kimberley, North-West, and arid regions generally the snail family Camaenidae predominates. Throughout the State there are also many other smaller and inconspicuous terrestrial snails and a small number of aquatic snails and bivalves.

### Coelenterata

This group includes the corals (Anthozoa), the hydroids (Hydrozoa) and jellyfish (Scyphozoa).

Reef-building corals occur on the north-western coast in abundance and form reefs as far south as the Abrolhos Islands (29°S.), and Port Gregory (28°S.) on the mainland. Further south, reef-building corals are few in number and occur as small reefs and as scattered colonies on islands off the coast, but not on the coast itself. The staghorn coral *Acropora* is plentiful around the Abrolhos Islands and at Port Gregory but it has not been found further south except in Pleistocene fossil beds on Rottnest Island. Two or three species of corals extend east of Albany, and one, *Plesiastrea urvillei*, occurs right along the south coast of Australia.

Soft-corals are abundant on the muddy reefs of much of the north-west coast but few species occur on the west coast. The brightly-coloured fan coral *Mopsella* is common on rocky reefs of the west and south coasts.

Jellyfish of a few species, such as the white *Aurelia aurita* and the brown *Phyllorhiza punctata*, are common in the Swan River in summer. *Carybdea*, the small 'sea-wasp', occurs on the open coast.

### Crustacea

The most important commercial species of crustacean in Western Australian marine waters is the rock lobster or 'Cray', *Panulirus cygnus*. It occurs from North West Cape in the north to Hamelin Bay in the south. In the tropics five additional species of *Panulirus* occur; these are collectively referred to as 'Green Crays' (*Panulirus versicolor*, *P. ornatus*, *P. homarus*, *P. penicillatus* and *P. polyphagus*). On the southern coast occurs *Jasus novae-hollandiae*, which is the commercial species of rock lobster (crayfish) in south-eastern Australia, but it is not of economic importance in this State.

The Swan River Prawn or School Prawn (*Metapenaeus dalli*) occurs on the west coast of this State and extends into Indonesian waters. In Exmouth Gulf and in Shark Bay two species of tropical prawns are caught commercially. These are the Tiger Prawn (*Penaeus esculentus*) and the Banana Prawn (*Penaeus merguensis*). The Western King Prawn of the south is *P. latisulcatus*.

The Blue Swimming Crab (*Portunus pelagicus*), plentiful in the summer in the estuaries of the Swan River and at Mandurah, is one of the common commercial crabs of Australia.

Two common species of crab are the Rock Crab (*Leptograpsus variegatus*) and the Ghost Crab (*Ocypode convexa*). The Rock Crab scrambles among rocks and jetty piles of the west and south coasts, whereas the Ghost Crab digs near-vertical burrows at the edge of the beach and is endemic to the west coast.

Of the many other species of non-commercial crustaceans some groups have been recently monographed by scientific workers. These are the swimming crabs, mantis shrimps and pebble crabs.

Crustacea are also common in inland waters (see *Fauna of Inland Waters* earlier in this Part).

### Spiders

Like most other invertebrate groups, the spiders are represented by a large number of genera and species and it is not possible at this stage to give an accurate picture of the relationships of the Western Australian fauna to the rest of Australia. Early work on the Western Australian spiders was restricted to the description and naming of species. Research now is centred on investigations of the biology of various species and the special adaptations of endemic forms to the particular conditions of the Western Australian environment. The most interesting of the spiders, when viewed from this aspect, are the burrowing groups, including primarily the Mygalomorphae ('trapdoor' spiders) and the Lycosidae (Wolf spiders). Some of these forms show special adaptations to semi-arid environments, to reduced food supply, and to flash-flooding, such adaptations being paralleled in many taxonomically unrelated genera. It is also of interest that some families, which in other parts of the world and in the wet forests of Australia are primarily web weavers and litter dwellers, are burrowers in the arid parts of Western Australia (and also in other dry parts of Australia). Such forms are essentially nocturnal and escape the unfavourable conditions of the day by remaining in their burrows and some species seal their burrows during the summer period.

### Insects

The more important insect species occurring in Western Australia (particularly those of economic significance) are dealt with in Part 5 of this Chapter.

## CONSERVATION OF THE FAUNA

In recent years the need to conserve the Western Australian fauna has received considerable publicity—this need has certainly never been greater than it is at present. In this State where new land has been brought into production for agriculture and the pastoral industry at a rate of approximately 1 million acres a year, and where the ever-increasing

tempo of industrialisation and mining activity is obvious to all through its effect in increased population, the position of the native fauna is serious. This is because human introductions such as sheep and cattle, as well as the more direct effect of the plough and the scrub roller, are radically changing the environment, but also because an increase in human population has meant a higher level of utilisation of wild stocks such as ducks (which form a basis for sport), kangaroos (which form a basis for a lucrative trade in pet meat and hides), and rock lobsters (which support the most valuable single Australian fishery).

From the early days of settlement in Western Australia, legal provisions were in existence under which land could be reserved but, in early years it was not realised that the preservation of habitat is basic to conservation and that protection of individuals against killing is of insignificant value except in specialised cases (see below). In the early days, protection was afforded to some game animals, such as kangaroos, to prevent them from being shot out, but it was not until land development became widespread in the South-West that the first real attempt was made to set aside a large permanent native fauna and flora reserve. This was in 1894 when 160,000 acres were gazetted between Pinjarra, North Dandalup and the Bannister. Unfortunately, this reserve later became alienated.

From this early attempt at habitat conservation has grown a very conscious need for extensive reserves carefully sited and selected in order to provide security for a representative sample of all the major habitats throughout the State. In 1959, a committee of the Australian Academy of Science produced such a plan for Western Australia and this plan has provided in subsequent years the basis for a policy of land acquisition for this purpose by the two major bodies who control land for conservation, *i.e.* the National Parks Board and The Western Australian Wild Life Authority.

Outside the reserves, fauna gains its protection through the Fauna Conservation Act. This Act replaced an earlier Game Act of 1912-1913 which had the rather different primary purpose of providing some measure of protection for those species of native fauna shot or hunted for sport. Under the Fauna Conservation Act, all native vertebrate terrestrial fauna, except those species declared vermin or declared otherwise unprotected, are protected against being taken, hunted, or confined. Owing to the very complex relationship between many species and their environment, such protective legislation has only a very limited long-term conservative effect in areas of closer settlement or intensive agriculture. On the other hand, in pastoral and forest areas, and in unalienated crown land not in fauna reserves, the legislation is much more valuable. The most important achievement of such protective legislation, however, is that it makes people conscious of the need to protect our native fauna and it is very likely that this educational function is its main justification except:

- (i) where animals occur on small islands or restricted places on the mainland in such numbers or in massed concentrations that they are vulnerable to destruction by man. Local examples are the Noisy Scrub-bird at Two Peoples Bay near Albany, sea birds in nesting concentrations on small islands, and island populations of mammals such as the Quokka on Rottnest or the various wallabies on Bernier and Dorre Islands in Shark Bay.
- (ii) where they are killed in the mass for commercial purposes, *e.g.* Humpback Whales, Fur Seals, Kangaroos;
- (iii) where they are killed for sport, *e.g.* the Bustard (Plains Turkey), ducks;
- (iv) where they are taken in very large numbers for zoos, circuses, or aviculture, *e.g.* finches and parrots.

In addition to its protective role, the Fauna Conservation Act establishes The Western Australian Wild Life Authority which is responsible for:

- (i) the initiation of conservation-oriented research in relation to the fauna;
- (ii) the acquisition, control, planning and management of an adequate system of sanctuaries (*i.e.* land reserved partly or entirely for the purpose of fauna conservation) including the preparation and implementation of working plans for each area; and

- (iii) advising the Minister for Fisheries and Fauna in relation to fauna conservation generally.

In Western Australia today the only terrestrial native fauna subject to any marked degree of human predation are ducks, eagles, emus, kangaroos of three species (the Grey, the Red, and the Euro) and the dingo. Excepting for certain vermin species on which a bonus is payable, figures for the total annual number killed are not available and until they are, and details of population size and rate of stock recruitment are known, it will not be possible to say whether these species are in serious danger. At present, only the crudest methods (*i.e.* of observing abundance and then subjectively comparing this with previous experience) can be used to say whether it is necessary to apply protection to prevent a serious decline in numbers.

By contrast, the position of the marine fauna is very different. There, intensive work has been done on whale, fish and invertebrate stocks in past years. There has been some cause for alarm in connection with an apparently depleting rock lobster stock, but conservative measures have been developed, and there are very good grounds for belief that these have been successful. The great reduction of the population of Humpback Whales due to over predation is a matter of considerable shame—it illustrates well the dilemma of an industry which is faced with the alternative of a low level of fishing over an indefinite period, or a highly lucrative but short period of exploitation as though the stock were not capable of regeneration (a procedure akin to a mining operation). In the case of the whaling industry in Western Australia the position was complicated by the fact that the stock was hunted both by the shore-based Western Australian fishery and by the international pelagic fleets operating in the Antarctic.

At present, our greatest need is information upon which to base proper conservative measures. Protective legislation, no matter how effective it is in protecting individuals, must not be regarded as effective in conservation unless measures to protect the environment are also taken. As a result, the authors believe that the stages of work most urgent at present to conserve the Western Australian fauna are as follows.

- (i) to complete the reservation of lands designated in the report of the Western Australian Sub-committee of the Australian Academy of Science.
- (ii) recognising that these areas are designated upon the best available information as to habitat type, but not upon actual surveys of the fauna, the authors believe that the areas must now be given thorough biological surveys to ensure that populations of all Western Australian species of animals and plants are contained within them; and also to estimate, as far as possible, the sizes of the populations which they contain.
- (iii) to get under way an increased amount of long-term work on the biology of species which are suspected to be vulnerable. Through this work their particular requirements will be discovered and an endeavour can then be made to ensure that the reserves contain these requirements.
- (iv) to insist on proper monitoring for any annual crop taken from vermin or other species subject to human predation so that these populations can be maintained at the level consistent with the State's particular requirements, and yet to avoid their extermination.

In Western Australia, land development has not yet gone too far for the State to preserve a representative section of its fauna and flora for all time. The keys to this are habitat conservation, reserve management, and education in conservation thinking. Through these means, it will also be able to ensure that as much wild life as possible remains in altered environments as well. Indeed, if roadside verges, small township reserves and timber lots on farms are preserved, a surprisingly large number of native creatures will survive. The importance of these minor habitats, often regarded condescendingly by professional biologists who focus their attention on big reservations, cannot be sufficiently stressed. It is in these areas that the ordinary people and tourists gain an acquaintance with the native fauna and flora. Here man and animals will contrive to co-exist in intimate association with each other and so help to reinforce a popular sentiment for conservation.

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## Chapter II—continued

### Part 5—Entomology in Western Australia

With Particular Reference to Agriculture

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The entomological field in Western Australia is so vast and the number of active workers on the subject so few that much still remains to be learned about the insects found in this State. A wide range of environmental conditions exists, from the tropical north to the temperate south, and the geographical isolation of the State has allowed the development of numerous endemic forms. As may be expected, the insect fauna of the Kimberley Division shows closer affinities with that of North Queensland than with the lower half of the State. The central desert, which reaches the coast to the south along the Great Australian Bight and to the north along the Eighty Mile Beach, forms an effective barrier discernible in the distribution of flora, mammals, insects and birds.

Owing to the limitations of space no attempt has been made to cover all the various insect orders which occur in the State, but the economic importance of various groups and their influence on major agricultural industries have been outlined, and some of the more outstanding forms of general interest have been mentioned. A section has been included dealing with the use of pesticides in Western Australia.

#### CLASS INSECTA (Insects)

##### Order Collembola (Springtails)

The springtails include the lucerne flea (*Sminthurus viridis*) which was introduced into this State from eastern Australia in about 1910. It has spread to almost all the clover-growing areas in the South-West and is a very serious pasture pest. Partial control is exercised by the predatory bdellid mite (*Bdellodes lapidaria*).

##### Order Odonata (Dragonflies and Damselflies)

These insects are predatory in both the immature and adult stages and are usually regarded as beneficial creatures. However, they sometimes injure vegetable seedlings by ovipositing into furrow-irrigated crops. This has occurred mainly at Carnarvon where surface water is scarce and where irrigated plants are presumably mistaken for aquatic vegetation.

In order to survive in the diverse climatic conditions which exist in Western Australia, some members of the dragonfly group have developed the ability to breed in highly saline waters and to take advantage of ephemeral inland pools.

##### Orders Orthoptera, Mantodea, Blattodea, Phasmatodea (Grasshoppers, Locusts, Mantids, Cockroaches, etc.)

The grasshoppers and locusts are represented by a large number of different species. The most important pest form is the small plague grasshopper (*Austroicetes cruciata*). The normal habitat of this species lies roughly between the ten inch and the fifteen inch isohyets. For breeding it favours hard, bare soil and as extensive areas once utilised for wheat growing have now reverted to grazing, these uncultivated tracts periodically give rise to serious grasshopper swarms, which menace the adjacent wheat lands. The Australian plague

locust (*Chortoicetes terminifera*) so troublesome in other States occurs in Western Australia but rarely as a plague species. In the Kimberley the yellow-winged locust (*Gastromargus musicus*), the migratory locust (*Locusta migratoria*) and the spur-throated locust (*Austracris guttulosa*) assume plague proportions, but in the southern agricultural districts they occur in the solitary phase only. The mantids (Mantidae) are represented by many different species. Their well-developed fore-limbs are admirably adapted for catching prey and, like their foliage-feeding relatives the phasmatids or leaf insects (Phasmatidae), their colouring harmonises remarkably with the sticks and leaves on which they rest. The cockroach fauna includes a large number of native species as well as several introduced forms. The commonest pest species is the cosmopolitan American cockroach (*Periplaneta americana*). Some large and quite colourful forms occur in the inland regions with the genus *Polyzosteria* well represented.

### Order Isoptera (Termites)

The so-called white ant is a serious pest in all parts of the State. Earth-dwelling types occur mainly, and among the most important species may be cited the large *Mastotermes darwiniensis* of the north and the widely distributed *Coptotermes acinaciformis*. The large mounds of the grass-eating *Nasutitermes triodiae* are characteristic of certain landscapes in the pastoral areas. Heavy annual losses are caused by termite damage and the use of such chemicals as dieldrin, aldrin, chlordane and creosote is recommended for the protection of timber structures.

### Order Phthiraptera (Lice)

Indigenous species occur on birds and native mammals, and various introduced forms infest domestic poultry, horses, cattle and sheep.

### Order Thysanoptera (Thrips)

This order is represented locally by a large number of native species as well as several introduced forms. The most serious native species is *Thrips imaginis* which may swarm in apple blossoms and seriously affect the crop setting.

*Thrips tabaci*, often called the tobacco or onion thrips, is a carrier for the plant disease spotted wilt. Severe damage to tomato plants may result from this virus.

### Order Hemiptera (Bugs, Aphids, Scale Insects)

This group contains a large number of pest species, many of them introduced. A serious vegetable pest is the green vegetable bug (*Nezara viridula*) which is partially controlled by an introduced wasp parasite, *Trissolcus basalus*. The native Rutherglen bug (*Nysius vinitor*) may at times swarm on vegetables and fruit trees, but seems less serious in this State than on the other side of the continent. The crusader bug (*Mictis profana*), so named because of the light-coloured St Andrew's cross on the back of the adult, feeds normally on acacias and other native plants, but it frequently invades cultivated areas and it may be troublesome to young citrus. The apple dimpling bug (*Campylomma livida*) is a native species which sometimes causes severe malformation of apples by feeding upon the very small developing fruit.

One native aphid (*Anomalaphis comperei*) has been recorded. The only two districts from which it has so far been collected are Albany and Karridale where it has been found infesting native peppermint (*Agonis flexuosa*). A point of interest about these occurrences is that the aphids were associated with a heavy Argentine ant infestation in the area. Since the removal of the ants, following dieldrin spraying, no further aphids have been discovered.

Numerous introduced species occur as pests on vegetables, garden plants and fruit trees, e.g. *Myzus persicae* (peaches, potatoes, etc.), *Toxoptera aurantii* (citrus), *Brevicoryne brassicae* (cabbages, cauliflowers, etc.) and *Eriosoma lanigerum* (woolly aphid of apples). A relatively recent record which may prove of some importance is *Aphis craccivora*. This insect carries a virus disease of subterranean clover known as 'stunt'.

Of the native coccids the gall-forming members of the genus *Apiomorpha* are among the most remarkable. The woody galls in which the female insects pass their days vary from small structures a fraction of an inch across to woody knobs the size of an apple. From an economic point of view, however, the various introduced scale insects demand most attention. Included in the list of pest species are the following:

San Jose scale (*Quadraspidiotus perniciosus*), which is a serious pest of apples.  
Citrus red scale (*Aonidiella aurantii*), which is found mainly on citrus but with a wide host range.

Brown olive scale (*Saissetia oleae*), which is found attacking citrus, stone fruits and garden shrubs.

White wax scale (*Ceroplastes destructor*), which is mainly a pest of citrus but also attacks many cultivated shrubs.

Soft brown scale (*Coccus hesperidum*), which has a wide host range but is of greatest importance on citrus.

Grass-crown mealybug (*Antonina graminis*), which is a widespread and troublesome pest causing damage to lawns particularly in the warmer parts of the State.

### Order Coleoptera (Beetles)

This order is the dominant one among existing insects and is represented in Western Australia by many and varied forms. The carnivorous ground beetles (Carabidae) are widely distributed, one of the best-known species being the bright green stink beetle (*Calosoma schayeri*). The tiger beetles, of the sub-family Cicindelinae, are of interest not only because of the metallic colouration seen in many forms but because of their association with the inland salt-lakes. The larvae are subterranean and may be collected by digging on the lake margins.

The ladybirds (Coccinellidae) comprise a group of considerable economic importance and in addition to native species the State contains a number specially introduced to combat various scale insects and aphids. Among the best known of the introduced species are *Cryptolaemus montrouzieri* and *Leis conformis*. The larvae of *Cryptolaemus* are covered with a whitish material which makes the insect superficially resemble the mealybugs upon which it feeds. *Leis conformis* in conjunction with the wasp parasite *Aphelinus mali* plays an important role in combating the woolly aphid of apple trees. Destructive leaf-eating ladybirds belonging to the genus *Henosepilachna* were once found only in the northern parts of the State where they attack vegetables, especially pumpkins and melons. In 1956, specimens of *Henosepilachna* were collected in Perth. Since then they have become established in several suburban areas, but how the introduction occurred is not known.

The jewel beetles (Buprestidae) contain some of the most colourful beetles to be found anywhere in the world. Western Australia is particularly rich in species and at times the beetles may be found in large numbers on flowering mallee and sand plain flora. One of the commonest is the metallic green *Stigmodera gratiosa*, and one of the largest is *Julodimorpha bakewelli*, measuring almost three inches in length. Although the beetle larvae are wood borers, closely resembling the 'bardee' in appearance and habits, they are of little economic importance.

The cockchafers or scarabs (Scarabaeidae) are represented by a great diversity of forms. Several species may swarm on to flowering fruit trees and roses in the early summer and are popularly known as spring beetles. The bronze-coloured *Colymbomorpha lineata* is a common pest of apple trees during the blooming period and the saddle-backed beetle (*Phyllotocus ustulatus*) sometimes visits citrus blossoms in large numbers. An introduced species commonly known as the black beetle (*Heteronychus arator*) has gained a firm footing in the State and is a troublesome pest of lawns and turf. It is also growing in importance as a pasture and vegetable pest. A native species of *Colpochilodes* has caused spasmodic damage to cereal crops and clover pastures in the southern portions of the State.

The longicorn beetles (Cerambycidae) are a group of wood-boring insects represented by a number of different species. They are often blamed for the death of forest eucalypts, although investigations have shown that heavy beetle infestations are usually secondary

and that healthy trees are seldom seriously affected by the beetles. The larval stage of this group is the so-called 'bardee', at one time prized by the Aborigines as food. They are not a pest of structural timber as they do not attack seasoned material.

The leaf beetles (Chrysomelidae) may superficially resemble ladybirds in general appearance as some of them are rounded and quite brightly coloured. Two species have been introduced into the State for the purpose of combating St John's Wort, a troublesome weed in some districts. *Chrysomela gemellata* and *C. hyperici* were originally introduced into Australia from the South of France and liberated in Victoria with very satisfactory results. The local colonies were obtained from the latter source and have become established in several districts. In some situations a reduction in St John's Wort can be attributed definitely to beetle activity, but in many areas the picture is obscure due to the extensive use of chemical sprays.

Common pest species in eastern Australia are the pumpkin beetles (*Aulacophora hilaris* and *Rhaphidopalpa palmerstoni*). These beetles are found in the north of the State but do not extend into the cooler latitudes.

The weevils (Curculionidae) are a very specialised group characterised by the presence of a rostrum or 'snout' which bears the mouth and antennae. The genus *Leptopius* contains a number of large greyish weevils, many of which breed in association with acacias. One of the best-known members of the family is *Catasarcus rufipes* which feeds on eucalypt foliage and may disfigure young street trees. The almost world-wide rice weevil (*Sitophilus oryzae*) is our principal pest of stored grain, but the granary weevil (*S. granarius*) also occurs. Two common orchard pests are the introduced apple weevil (*Otiorrhynchus cribricollis*) and Fuller's rose weevil (*Pantomorus cervinus*).

### Order Neuroptera (Lacewings)

This order contains a number of useful insects, for many of the neuropterous larvae feed upon scale insects and other pests. The family Myrmeleontidae has a number of large, rather dragonfly-like species, the larval stages of which build conical sand pits and are commonly known as ant lions. Amongst the most remarkable of the local lacewings are two members of the family Nemopteridae in which the hind wings are greatly modified. In the genus *Croce* they are long and thread-like and in the spoonwinged lacewing (*Chasmodon hutti*) they are spoon-shaped or paddle-shaped.

### Order Diptera (Flies, Mosquitoes, etc.)

This group contains a vast number of species, many of which are of major economic importance.

The mosquitoes are well represented, the commonest species being the brown house mosquito (*Culex fatigans*) and the yellow-fever mosquito (*Aedes aegypti*). The latter species is the carrier for dengue fever in the northern portion of the State. The anophelines are represented by the widely distributed *Anopheles annulipes* and several much rarer forms. *A. annulipes*, together with *Aedes alboannulatus*, have played an important part in the spread of the rabbit virus *Myxomatosis*.

Of the introduced flies, those causing most trouble are the Australian sheep blowfly (*Lucilia cuprina*) and the Mediterranean fruit fly (*Ceratitis capitata*). The buffalo fly (*Haematobia exigua*) is a serious stock pest in the Kimberley Division of the State, but so far has not become established in the cattle areas of the south. It is believed to have originally reached Australia on buffaloes introduced from Asia.

The common house fly (*Musca domestica*) is widespread as is also the native bush fly (*Musca vetustissima*). Despite its common occurrence and extremely wide range, the natural breeding habits of the latter fly are not fully known.

Modern insecticides such as DDT, dieldrin and the various organic phosphates gave outstanding control of various fly pests for several years. The widespread development of resistance in both housefly and blowfly populations has greatly complicated the matter, however, and drawn attention to the importance of preventive measures, such as sanitation in the case of houseflies, and the Mules operation and crutching in the case of the sheep blowfly.

The March flies (Tabanidae) are well represented but, although their blood-sucking habits render them annoying, both to livestock and humans, they are not a serious pest.

Of the many useful flies may be mentioned the blowfly-like tachinids which parasitise caterpillars, grasshoppers and other pests and the bee flies (Bombyliidae) which parasitise the eggs of other insects. The maggots of the bombyliid fly (*Cryptomorpha flaviscutellaris*) are commonly found in the egg pods of the small plague grasshopper (*Austroicetes cruciata*).

### Order Siphonaptera (Fleas)

A number of introduced as well as native fleas occur in this State. *Echidnophaga myrmecobii*, found originally on native mammals, is a very common parasite of rabbits in the drier parts of the State. The poultry stickfast flea (*E. gallinacea*) closely resembles the former species but is mainly a pest of poultry and domestic animals. The oriental rat flea (*Xenopsylla cheopis*), the human flea (*Pulex irritans*) and the cat and dog fleas (*Ctenocephalides felis* and *C. canis*) are among the most important introduced species.

### Order Lepidoptera (Moths, Butterflies, etc.)

The primitive swift moths (Hepialidae) are represented locally by a number of very beautiful forms. The larvae are wood borers but do not occur in sufficient numbers to constitute a serious forestry pest. Several large and striking members of the genus *Aenetus* occur in the lower South-West.

A group of small native moths of the family Pyralidae, sub-family Crambinae and commonly known as pasture webworm moths (*Hednota pedionoma*, *H. crypsichroa*, etc.) is a serious pest of cereal crops (excepting oats) and grass pastures. Depredations are controlled by planting on clean fallow, but the recent trend towards ley farming has greatly favoured these pests.

A family of considerable interest to the orchardist is the Tortricidae, for to this group belong the codling moth (*Cydia pomonella*) and the oriental fruit moth (*C. molesta*). Outbreaks of codling moth have occurred on a number of occasions, but drastic eradication measures have so far prevented this major apple pest from becoming permanently established and have given Western Australia the distinction of being the only large apple-producing country where the moth is not a major problem.

One of the best-represented families is the Noctuidae (cutworms) which contains several important pests. Included under this heading are the climbing cutworm or native budworm (*Heliothis punctigera*), the cluster caterpillar (*Spodoptera litura*), the rough bollworm (*Earias huegeli*), the brown cutworm (*Agrotis munda*) and the southern army worm (*Persectania ewingii*). The first three species are serious pests in the cotton areas of the north. The fruit-sucking moth (*Othreis materna*) also belongs to this group and causes heavy losses in citrus fruit grown around pastoral homesteads in the Kimberley and the North-West. In almost all cases where moths and butterflies are regarded as pests it is only the caterpillar stage which is destructive. The fruit-sucking moth, however, has a rasp-like proboscis capable of piercing orange and citrus skins and then sucking up the juice. Fortunately the creatures do not normally range to the citrus areas of the South-West.

One of the most remarkable members of the family Agaristidae is the whistling moth (*Hecatesia thyridion*). The male of this species is active just at sunset and makes a loud clicking noise during its fast circling flight.

Other common moth pests are the cabbage moth (*Plutella maculipennis*), the potato moth (*Phthorimaea operculella*) and the apple looper moth (*Chloroclystis laticostata*).

The beautiful *Carthaea saturnioides* with its large eye spots on the wings superficially resembles the emperor moths. Its range is restricted to south-west Australia and the creature is much prized by collectors.

The butterfly fauna of the State lacks many large and showy forms. Some of the northern species such as *Hypolimnas bolina nerina* are quite colourful but the State has nothing to compare with the conspicuous and beautiful species found in the tropics of eastern Australia.

The blues (*Lycaenidae*) are well represented and the association of many larvae with ant nests renders the group a particularly interesting one.

The skippers (*Hesperiidae*) are relatively drab-coloured butterflies with strong powers of flight. Over twenty species are recorded from the State and some forms are endemic to the South-West.

Only one butterfly is of economic importance and that is the introduced cabbage white butterfly (*Pieris rapae*) which reached this State in 1943. It attacks cabbages, cauliflowers and related plants as well as one or two other strong-tasting herbs such as watercress. The butterfly belongs to the whites, or *Pieridae*, which group contains a number of native species. Several members of this family, including the introduced cabbage white, display extraordinary powers of flight and the native caper white (*Anaphaeis java teutonia*) has been observed to carry out mass migrations of remarkable proportions on the eastern side of the continent.

### Order Hymenoptera (Bees, Wasps, Ants)

The wood wasps and *Sirex* wasps (*Siricidae*) include several pests which have been established in New Zealand and Tasmanian pine forests. Imported timber (including 4 million superficial feet of prefabricated housing material) has been fumigated from time to time following the location of infested material.

The sawflies (*Tenthredinidae*) are represented locally by a number of native forms. The larvae of the genus *Perga* may often be seen in caterpillar-like clusters amongst the foliage of eucalypts. An introduced sawfly (*Caliroa cerasi*) is a common pest on pear and plum trees. The smaller parasitic wasps (ichneumonids, chalcids and their allies) are well represented and play an important role in combating many insect pests. Some attack caterpillars, some aphids and scale insects and other insect eggs, so that without their aid the problem of pest control would be even more difficult than at present.

The ant fauna (*Formicidae*) of the State is extremely varied. One of the best-known native species is the meat ant or mound ant (*Iridomyrmex detectus*) which often nests on gravel paths and road-sides. Among the most remarkable of the local ants may be listed *Camponotus inflatus*, the honey-pot ant of the interior, and *Myrmecia regularis* of the karri forest area which has the frog *Metacrinia nichollsi* as a tolerated guest in its nest. The honey-pot ant derives its name from the fact that certain individuals in the nest store honey until their abdomens become inflated to the size of grapes. This honey is then regurgitated to other ants as required. These ants were once prized by the natives as a food delicacy.

Two important introduced ant pests are the Argentine ant (*Iridomyrmex humilis*) and the Singapore ant (*Monomorium destructor*). The Argentine ant was once widespread in the metropolitan area, Albany and Bunbury, with several other country outbreaks. The insect has been reduced in recent years, however, as a result of a large-scale control campaign. A five-year control scheme against the ant, with provision for an annual expenditure of \$210,000 was inaugurated in 1954. The scheme involved the spraying, mainly with dieldrin, of all known infested areas which were originally estimated to cover approximately 25,000 acres. During the course of the campaign further outbreaks were discovered, giving an estimated total of 45,000 acres and, in consequence, a year's extension of the campaign was authorised by Parliament. As a result of this a total of over 44,000 acres was sprayed and the ant menace was removed from the city and suburbs and most country districts. However, an area of almost impenetrable swamp country north of Perth still harbours the ants. To prevent spread from this area and to deal with any survivals or later introductions, a 'continuance scheme' financed from Consolidated Revenue was approved. Approximately 8,000 acres, consisting of survivals and new infestations in metropolitan and country areas, were treated under this programme. The campaign is continued under a new Act, the *Argentine Ant Act, 1968*, operative from 1 January 1969, which vests the authority for direction of the ant control campaign with the Minister for Agriculture. The total area treated since the commencement of the campaign in 1954 now stands at approximately 55,500 acres.

The social wasps (Vespidae) were once known only from the northern portion of the State. About 1949, however, colonies of *Polistes variabilis* were located in various parts of the Perth suburban area and they have now extended to some of the orcharding districts in the Darling Range. How the introduction occurred is not known.

The burrowing wasps, including the sand wasps (Pompilidae), the flower wasps (Scoliidae) and solitary ants (Mutillidae) are well represented. The latter are, of course, not true ants but the wingless females bear a superficial resemblance to ants which is further accentuated by their ability to inflict a painful sting. The flower wasps are particularly numerous and winged males carrying wingless females are common around flowering plants in the early summer. Of the solitary ants the black and white *Ephutomorpha cribricollis* is the best known. Most of the wasps mentioned are beneficial, for they store caterpillars and other insects in mud nests and underground burrows to serve as food for the wasp grubs.

The majority of native bees are solitary forms although some, like the Colletidae, often choose a common site for nest burrowing and hundreds of tunnels may be located close to one another.

The leaf-cutting bees (Megachilidae) often attract notice from their habit of cutting circular pieces from rose leaves and other foliage for use in nest construction.

The only native social bees belong to the genus *Trigona* which does not occur in the southern portions of the State.

#### CLASS ARACHNIDA (Spiders, Mites, Ticks, etc.)

Creatures grouped under the above heading are, of course, not true insects and will be dealt with only very briefly. Several forms are of considerable economic importance, as for example the cattle tick (*Boophilus microplus*) and the fowl tick (*Argas persicus*). The cattle tick is confined to the Kimberley Division and its range corresponds roughly with that of the buffalo fly. The ornate kangaroo tick (*Amblyomma triguttatum*) is a common species. It is occasionally collected as an accidental parasite on domestic animals and man.

The most serious mite pest is the red-legged earth mite (*Halotydeus destructor*) which is very destructive to young legumes and other seedlings. It may be particularly troublesome on subterranean clover pastures. Other mites of importance to orchardists and market gardeners are the spider mites (Tetranychidae) which include such cosmopolitan species as the two-spotted mite (*Tetranychus urticae*) and the bryobia mite (*Bryobia rubrioculus*).

Spiders constitute a large group, most of which are useful on account of their insectivorous habits, although bites from some of the larger species may produce painful after-effects. The most dangerous local spider is the red-backed spider (*Latrodectus mactans hasselti*). This species, whose bite may even prove fatal, is easily recognised by the conspicuous red streak down the centre of the abdomen.

Scorpions of various kinds are widely distributed over the State and the larger ones may be able to inflict a painful sting. There is one record of a baby dying at Pemberton from the effects of scorpion venom but no other reports of serious after-effects are available and, generally speaking, the group is of little local importance.

#### THE USE OF PESTICIDES IN WESTERN AUSTRALIA

It has been estimated that insects and their allies take toll of 20 per cent of man's food and fibre crops every year, and that the combined loss for Australia and New Zealand is in excess of \$100 million annually.

For this reason, a wide range of chemicals has been developed for pest control and their use has expanded rapidly in recent years.

After World War II a new era dawned as far as the use of pesticides was concerned, when many new chemicals were developed as insecticides, miticides, herbicides and fungicides. In the insecticide field two major groups, represented by DDT, BHC and



dieldrin (chlorinated hydrocarbons) and maldison, parathion and diazinon (organic phosphates), took over almost completely from the older chemicals. The development of new types is currently being vigorously promoted by the major chemical firms.

It is conservatively estimated that pesticides research by commercial interests costs approximately \$70 million a year and that seven years' work and up to \$2 million expenditure may be necessary to bring a new product to the farmer.

Despite this enormous expenditure and the more efficient control which is being made possible with modern chemicals, progress in this field has fallen far short of what was once thought possible. At least one reason for this is the rapidity with which many creatures have developed resistance to pesticides, necessitating increased rates of application or a search for yet another chemical.

Local examples are the gradual failure of dieldrin to control fly strike in sheep and the increase of spider mites in orchards and market gardens following the breakdown of the once effective demeton-methyl and related organic phosphates.

### **Dangers associated with the Use of Pesticides**

The wide variety and extreme toxicity of many of the newer chemicals, combined with their more extensive use, have greatly increased the hazards of pest control. Despite the dangers associated with the use of modern pesticides, however, investigations have shown that, although death and sickness have occurred in both humans and various forms of wild life as a result of pesticides, human progress owes much to the use of these same chemicals.

### **Safety Precautions**

There are something like 100 international organisations interested in various aspects of food production and storage and nearly thirty of these are interested in pesticides, particularly their safe usage. United Nations organisations such as the Food and Agriculture Organisation and the World Health Organisation produce periodic reports and most Governments have their specialist advisers. One of the most comprehensive reviews was that known as the 'President's Report' published in 1963 by the United States of America at the instruction of President Kennedy and designed to investigate the dangers associated with the widespread use of pesticides. The committee which carried out the review made a series of recommendations to reduce the hazards associated with the use of chemicals and emphasised the need for more detailed research. It stressed the necessity for programmes of public education, designed not only to give facts about the toxicity of pesticides but also the benefits accruing from their correct usage.

### **Residues and Tolerance Limits**

The Codex Alimentarius Committee on Pesticide Residues held its first meeting in The Hague, Netherlands in January 1966 and government experts and advisers from sixteen countries, including Australia, attended. The Committee considered a programme of work for attention by the Joint Meeting on Pesticide Residues (W.H.O. Expert Committee on Pesticide Residues and F.A.O. Working Party on Pesticide Residues) and outlined 'Basic Principles for the Adoption of Tolerances of Pesticide Residues.'

They stated that 'various differences in existing national tolerances represented a potential barrier to international trade and an attempt seems necessary to achieve uniformity in figures'. They requested member governments to consider the suggestion 'that provisional international tolerances might be reached which, although not based on acceptable daily intake figures, would provide a measure of agreement, whilst ensuring that foods are as sound as possible under the prevailing economic and other conditions'.

Certain principles governing consumer safety in relation to pesticide residues were established in 1961 by an F.A.O./W.H.O. Joint Meeting on Pesticide Residues. The meeting stated that 'the contamination of human and animal food should be restricted to the lowest possible level and that the amount of a residue should not be higher than that which results from good agricultural practice provided that the final amount is accepted as safe for long term consumption by man'.

In addition to fixing acceptable international residue standards, there is also necessity for the clarification of such terms as 'tolerance' and 'zero tolerance'. It has been suggested that the phrase 'trade or import tolerance' be used to define residues acceptable at the point of entry in a country and that 'acceptable consumer residue' be applied to residues acceptable at the time of consumption. The concept of 'no residue' or 'zero tolerance' is unacceptable to many as the accuracy with which residues can be detected depends upon the analytical techniques available, so that products acceptable under a nil tolerance by one technique could be excluded by another.

### Pesticide Registration

All pesticides offered for sale in Western Australia must be registered under the Health Act, and must comply with special conditions with regard to labelling and safety precautions. Before being approved for registration, products are considered by the Pesticides Advisory Committee which has the following representation:

- The Commissioner of Public Health
- The Director of the Government Chemical Laboratories
- The Director of Agriculture or his deputy
- The Secretary of the Poisons Advisory Committee.

Provision is also made for the co-opting to the committee of any person who may be able to supply specialised information on trade requirements.

In the case of veterinary products, these must also be registered under the Veterinary Medicines Act, and all poisons must also comply with the requirements of the Poisons Act.

Before being considered by any of the State Committees, pesticides are checked by the National Health and Medical Research Council and cleared by the Commonwealth Government's 'Technical Committee on Agricultural Chemicals'.

### Safety Precautions

Under the Acts already mentioned, various safety precautions are stipulated, including maximum concentrations for very toxic materials (*e.g.* parathion cannot normally be marketed in concentrations over 25 per cent), the type of protective clothing to be worn and the period which must elapse between treatment and harvesting. As a further safeguard, particularly from indiscriminate aerial spraying, requirements have been drawn up for the chemical rating of pilots engaged in aerial spraying and the control of the chemicals used.

In recent years there has been growing concern at the presence of pesticide residues in certain foodstuffs and the pollution of rivers and streams by various types of chemicals. The appearance of chemical residues in the tissues of such marine creatures as penguins and seals taken far from any known source of contamination has posed further problems, and has stimulated world-wide interest in pesticide usage and the associated side effects.

To reduce the chances of pollution, DDT and allied materials (chlorinated hydrocarbons) have been banned in some countries and their use greatly restricted in others. In Western Australia chlorinated hydrocarbons are not permitted for the treatment of stock or poultry and special conditions apply to their use on pastures and food crops. In order to check that these requirements are being implemented and that the desired effects are being achieved, various food products are periodically analysed for chemical residues and pest control methods are kept under continual review.

Present indications are that chemicals will continue to be the most important means of pest control for years to come. It is expected, however, that many of the highly toxic pesticides will be replaced by less dangerous formulae, and that wide spectrum chemicals will give place to materials with more specific functions. More use will also be made of sterilisation techniques, insect diseases and the breeding of resistant types of plants.

Pesticide applications may also be restricted by the more widespread use of the method generally known as 'integrated pest control', which entails the combination of several methods of pest control in such a manner as to be complementary and not antagonistic

to one another. This method necessitates a detailed ecological study of the pest involved so that cultural practices, parasite introduction or encouragement and chemical treatments can be suitably co-ordinated. The successful use of this method may also necessitate the acceptance of a slightly lower, but more practical degree of pest control, and a slight lowering of market standards.

### FURTHER SOURCES OF INFORMATION

The difficulties confronting anyone trying to review in a few pages the entomological fauna of such a large State as Western Australia will be better appreciated if it is remembered that in the *Western Australian Year-Book* for 1898-99 the late A. M. Lea expressed the opinion that there were about 30,000 species of insects indigenous to this State. Many additions have been made in the last sixty years and one is faced with the problem of deciding which creatures warrant special mention and which must be excluded for lack of space. The general reader interested in consulting other short reviews of the local insect fauna is referred to A. M. Lea's article in the 1898-99 Year Book under the title of 'The Insects of Western Australia'; in the Year Book for 1900-01 the late H. M. Giles wrote 'A Glimpse of Western Australian Entomology'.

Two short summaries have also appeared in conjunction with science conferences in this State. The *Handbook and Review* published for the 1926 meeting of the Australasian Association for the Advancement of Science contained an article by L. J. Newman and the *Handbook* for the 1947 meeting of the Australian and New Zealand Association for the Advancement of Science printed a short summary of the local insects by L. Glauert.

Readers interested in more technical summaries are referred to Professor G. E. Nicholl's 'The Composition and Biographical Relation of the Fauna of Western Australia' (*A.N.Z.A.A.S.*, Vol. XXI, 1933, p. 93), the relevant volumes of *Die Fauna Südwest-Australiens* by Michaelsen and Hartmeyer, 1907-1930, and the report of the Swedish expedition under Dr E. Mjöberg.

More detailed information relating to the forms of economic importance will be found in the publications of the Western Australian Department of Agriculture.

Literature covering the general aspects of Australian entomology and pesticide usage includes:

- ANON. *The Insects of Australia*. Division of Entomology, C.S.I.R.O. University Press, Melbourne, 1970. 1029 pp.
- ANON. *Use of Pesticides*. A Report of the President's Science Advisory Committee. Government Printing Office, Washington, D.C., 1963. 25 pp.
- BARRETT, C. AND BURNS, A. N. *Butterflies of Australia and New Guinea*. N. H. Seward Pty Ltd, Melbourne, 1951. 187 pp.
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- CARSON, R. *Silent Spring*. Hamish Hamilton, London, 1963. 304 pp.
- COMMON, I. F. B. *Australian Moths*. Jacaranda Press, Brisbane, 1963. 128 pp.
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- MCKEOWN, K. C. *Australian Insects*. An Introductory Handbook. Published by R.Z.S. of N.S.W., Sydney, 1945. 303 pp.
- MAIN, BARBARA YORK. *Spiders of Australia*. Jacaranda Press, Brisbane, 1964. 124 pp.
- MELLANBY, K. *Pesticides and Pollution*. Collins, London, 1967. 221 pp.
- RIEK, EDGAR. *Insects of Australia*. Jacaranda Press, Brisbane, 1963. 128 pp.
- TILLYARD, R. J. *The Insects of Australia and New Zealand*. Angus and Robertson Ltd, Sydney, 1926. 560 pp.
- WATERHOUSE, G. A. *What Butterfly is That*. A Guide to the Butterflies of Australia. Angus and Robertson Ltd, Sydney, 1932. 291 pp.
- WATSON, J. A. L. *The Dragonflies (Odonata) of South-Western Australia*. Western Australian Naturalists' Club, Perth, 1962. 72 pp.
- WHITTEN, J. L. *That We May Live*. D. van Nostrand Co., Princeton, New Jersey, 1966. 251 pp.



## CHARACTERISTICS OF THE NATURAL REGIONS OF WESTERN AUSTRALIA

The subdivision of Western Australia into Natural Regions (see map on page 91) has been described by E. de C. Clarke in *Jour. Roy. Soc. West. Aust.*, vol. XII, pp. 117-32. A summary of the characteristics of these different Natural Regions (reprinted by courtesy of the University of Western Australia Press from Clarke, Prider and Teichert: *Elements of Geology for Western Australian Students*) is given below.

NATURAL REGION	TOPOGRAPHY	GEOLOGY	RAINFALL	WATER SUPPLY (a)	VEGETATION, ETC.
ANTRIM (geographic)	Tableland	Cambrian sediments and lavas	Summer, monsoonal, 20 to 40 inches	Catchments, wells and artesian	Grassland and savannah
NORTH KIMBERLEY (geographic)	Dissected stony tableland	Younger Precambrian	Summer, monsoonal, 30 inches or more	Streams, springs, catchments	Luxuriant in valleys, sparse on tableland
FITZROY (chief river)	Very wide valleys and low hills	Palaeozoic (largely Permian)	Summer, monsoonal, 20 to 30 inches	Catchments and artesian	Grassland and savannah
CANNING (A. W. Canning, surveyor and explorer)	Sand ridges and table-top hills	Palaeozoic and Mesozoic	Summer, 15 inches or less	Springs, pools, artesian water? (undeveloped)	'Spinifex' (species of <i>Triodia</i> ) and desert shrubs
CARNEGIE (David Carnegie, explorer)	Sand ridges and table-top hills	Mesozoic, Palaeozoic and Younger Precambrian	Variable and unreliable, probably about 5 inches	Catchments	'Spinifex' and desert shrubs
WARBURTON (Warburton Range)	Hills (some over 3,000 feet) separated by sandy country	Older Precambrian	Variable and unreliable, perhaps about 5 inches. Probably better than Carnegie Region owing to high hills	Catchments, some springs	'Mulga' (species of <i>Acacia</i> ) and 'Spinifex'
NORTH-WEST (common usage)	Rugged hills. Rivers in well-defined valleys	Younger and Older Precambrian. Many economic minerals	Variable, unreliable, 15 inches or less	Wells, pools	'Spinifex', few shrubs and trees
MURCHISON (common usage)	Ridge hills and breakaways. Rivers in shallow beds. Salt 'lakes'	Older Precambrian. Economic minerals especially gold and nickel	Summer or winter, unreliable, 10 inches or less	Wells (potable groundwater)	'Mulga'. Eucalypts scarce except along rivers

KALGOORLIE .... (chief town)	Less hilly than Murchison. Salt 'lakes'. No defined water-courses except salt lake system	Older Precambrian. Economic minerals especially gold and nickel	Mainly winter, unreliable, 10 inches or less	Catchments. Ground water too salty for use	Eucalypt forest, especially Salmon Gum ( <i>E. salmonophloia</i> ), Gimlet ( <i>E. salubris</i> ) and Red Morrel ( <i>E. longicornis</i> )
WHEAT BELT .... (common usage)	Same as Kalgoorlie Region	Older Precambrian, but few 'greenstones'	Winter, reliable, 10 to 20 inches	Similar to Kalgoorlie Region, but ground water potable in many places; therefore wells frequent	Eucalypt forest—Salmon Gum, Gimlet, and Morrel
JARRAH (chief timber)	More dissected than Wheat Belt Region, especially near Darling Scarp	Like Wheat Belt Region but there is an extensive cuirass of laterite	Winter, reliable, 25 to 40 inches	Streams and springs	Forest of Jarrah ( <i>E. marginata</i> ), Wandoo ( <i>E. redunca</i> var. <i>elata</i> ), Karri ( <i>E. diversicolor</i> ) and Marri ( <i>E. calophylla</i> )
CARNARVON (chief town)	Elevated plain with table-top hills	Palaeozoic, Mesozoic, Tertiary and later	Summer or winter, very unreliable, about 10 inches	Artesian in many places. Catchments, pools	Sparse scrub in north, denser in south
GREENOUGH .... (river)	Sandstone tableland	Mesozoic and older	Winter, 15 to 20 inches	Springs, wells and catchments	Scrub
PERTH .... (chief town)	Coastal plain	Mesozoic and later	Winter, reliable, 20 to 35 inches	Springs, wells, artesian	Scrub, swamp and forest
STIRLING (prominent range)	Undulating tableland with abrupt ranges	Siliceous Tertiary sediments with inliers of Younger and Older Precambrian	Winter, 15 inches or less	Catchments, stream water generally too salty for use	Heath and swamp
NULLARBOR .... (geographic)	Tableland, no hills	Calcareous Tertiary sediments	Winter, 10 inches or less	Catchments. Sub-artesian	Poor grassland

(a) 'Wells' refers to those that draw on ground water, but are not artesian. 'Catchments' refers to water collected on the surface—naturally in gnamma holes, artificially by conserving the run-off. 'Pools' refers to pools in watercourses and includes rock holes.

## CHAPTER III—CONSTITUTION AND GOVERNMENT

Western Australia is one of the six federated sovereign States which, together with the Northern Territory and the Australian Capital Territory, constitute the Commonwealth of Australia. Thus, in addition to having its own Parliament and executive government, it is represented in the federal legislature. As well as government at the Federal and State levels, there is a third system, that of local government, which functions through City Councils, Town Councils and Shire Councils.

### OUTLINE OF CONSTITUTIONAL DEVELOPMENT

A Legislative Council was established in Western Australia shortly after its foundation as a Crown Colony and sat for the first time in February 1832. The Council was non-elective and consisted of the Governor and four senior officials. In 1839, membership was increased to nine when the Governor nominated four unofficial members. Additional appointments were made from time to time until the dissolution of the nominee Legislative Council in 1870 with the inauguration of representative government as provided for in the Australian Colonies Government Act of 1850. This Act, which enabled the establishment of representative governments in other Australian Colonies, withheld the privilege from Western Australia until such time as the Colony should be able to defray all costs of government from its own revenues, and it was not until 1870 that it was felt that Western Australia was able to satisfy this condition. The new Legislative Council, elections for which took place in October of that year, consisted of twelve elected members, three nominees and three officials. The number of members of the Council was increased in 1874 to 21, of whom 14 were elected, in 1882 to 24, of whom 16 were elected and in 1886 to 26, comprising 17 elected members, 5 nominees and 4 officials.

Following the passage by the Legislative Council of a Constitution Act in 1889 and subsequent representations made in London by delegates sent from the Colony, responsible government was granted to Western Australia by an Imperial Act assented to on 15 August 1890. Provision was made for the establishment of a Parliament of two Houses, to be known as the 'Legislative Council' and the 'Legislative Assembly', to replace the old Council. Proclamation of responsible government was made in Perth on 21 October 1890 and election of the thirty members of the Legislative Assembly took place in November and December. The fifteen members of the Legislative Council were nominated by the Governor, as provided in the Constitution Act, and the Parliament was officially opened on 30 December 1890. The Constitution Act of 1889, while prescribing a Council which was originally nominative, contained a provision that, after the expiration of six years or on the population of the Colony reaching 60,000, the Council should become fully elective. The required population was attained in 1893 and an amendment to the Act in that year enabled the election of twenty-one members to the Legislative Council, and at the same time increased the Legislative Assembly to thirty-three members. By an amendment of 1899, membership of the Legislative Council was raised to thirty and of the Legislative Assembly to fifty. Provision was made for the Legislative Assembly to be increased to fifty-one members by the *Constitution Acts Amendment Act (No. 2), 1965*. The increase in numbers, however, did not become effective until the State general election in 1968.

On 1 January 1901, Western Australia and the five other Australian Colonies were federated under the name of the 'Commonwealth of Australia', authority for the union having been given by the Commonwealth of Australia Constitution Act which was passed by the British Parliament in 1900. By a provision of the Constitution Act the constituent parts of the Commonwealth previously designated 'Colonies' became known as

'States'. Under the Constitution, powers are divided between the Parliaments of the Commonwealth and of the States by conferring power in respect of specific subjects on the Commonwealth either exclusively or jointly with the States, leaving the remaining powers to the States.

Procedure in both Commonwealth and State Parliaments is based on British practice. The legislatures consist of the Sovereign, represented by the Governor-General of Australia or the Governor of the State, and the elected members. In the field of executive government the British 'Cabinet' system has also been adopted. The members of the Cabinets must hold seats in the legislature as elected members. The Cabinet is responsible to the Parliament and continues in office only while holding the confidence of the Parliament. All Cabinet Ministers are members of the Executive Council, the supreme group of advisers to the Crown, and the Cabinet thus provides the executive government of the Commonwealth or the State. The Executive Council is presided over by the Governor-General of Australia or the Governor of the State and at its meetings, which are formal and official in character, the decisions of the Cabinet are given legal form, appointments are made, resignations accepted, proclamations issued and regulations approved.

## VICE-REGAL REPRESENTATION

### The Governor-General of Australia

Under the Commonwealth Constitution, ultimate executive power is vested in the Crown and is exercised by the Governor-General as the direct representative of the Sovereign. Appointment to the office is made by the Crown after consultation with the Prime Minister of the Commonwealth. The present Governor-General is His Excellency the Right Honourable Sir Paul Hasluck, P.C., G.C.M.G., who was sworn in on 30 April 1969. During the absence from Australia of the Governor-General it is usual for the senior among the State Governors to be appointed Administrator.

### The Governor of Western Australia

The Governor of Western Australia is the personal representative of the Sovereign in the State and exercises the powers of the Crown in State matters. He is the titular head of the Government and performs the official and ceremonial functions attaching to the Crown. The present Governor of Western Australia is His Excellency Major-General Sir Douglas Kendrew, K.C.M.G., C.B., C.B.E., D.S.O. In the event of the Governor's absence from Western Australia the Lieutenant-Governor of the State is appointed Administrator. If there is no Lieutenant-Governor it is customary for the Chief Justice of Western Australia to be appointed Administrator.

The last Governor of Western Australia as a Colony was Lieutenant-Colonel Sir Gerard Smith, K.C.M.G., whose term of office expired on 29 June 1900 and the first Governor of the State was Captain Sir Arthur Lawley, K.C.M.G., who was sworn in on 1 May 1901. The names and dates of assumption of office of Governors, Lieutenant-Governors and Administrators from the foundation of the Colony to 1951 are shown in the *Official Year Book of Western Australia*, No. 1—1957. Subsequent appointments appear in Year Book No. 4 of 1964 and later issues. The Honourable Sir Albert Wolff, K.C.M.G. was commissioned as Lieutenant-Governor on 26 May 1968 and since that date has performed the functions of Administrator of the State during absences of the Governor.

## THE FEDERAL PARLIAMENT

The legislative power of the Commonwealth is vested in a Federal Parliament which consists of Her Majesty the Queen (represented by the Governor-General), a Senate and a House of Representatives. Subject to the Constitution, the Commonwealth Parliament is empowered to make laws concerning, among other things, defence, external affairs, customs and excise, trade and commerce with other countries and among the States, taxation, borrowing of money on public credit, currency and coinage, banking, insurance,



navigation, fisheries, quarantine, posts and telegraphs, census and statistics, immigration, naturalisation and aliens, copyrights and trade marks, bankruptcy, marriage, divorce and matrimonial causes, social services, and conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. The Constitution provides that, when a law of a State is inconsistent with a law of the Commonwealth, the Commonwealth law shall prevail and the State law shall, to the extent of the inconsistency, be invalid.

The qualifications necessary for membership of the Commonwealth Parliament and for voting at federal elections are described in the *Official Year Book of the Commonwealth of Australia*.

The payment of allowances to Senators and Members of the House of Representatives is provided for in the Constitution and a superannuation scheme is established under the provisions of the *Parliamentary Retiring Allowances Act 1948-1966*.

### The Senate

The Senate consisted originally of thirty-six members, six Senators being returned from each State. The Parliament is authorised by the Constitution to increase or decrease the number of members. The growth of the population since Federation having been such as to warrant a considerable enlargement of the Parliament, a Representation Act was passed in 1948 to provide for increased membership by raising from six to ten the number of Senators from each State. At the same time the alternative system of counting of votes in elections for the Senate was altered by the Commonwealth Electoral Act to one of proportional representation, a summarised description of which is given in the *Official Year Book of the Commonwealth of Australia*, No. 38, pages 82-3.

Members are elected on the basis of adult suffrage by the people of the State which they represent. As provided by the *Commonwealth Electoral Act 1918-1966*, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925. The term of office of a Senator is normally six years. One-half of the members retire at the end of every third year and are eligible for re-election.

The Western Australian membership of the Senate at 31 December 1970 is shown in the following table.

WESTERN AUSTRALIAN MEMBERS OF THE SENATE

Due to retire on 30 June 1971				Due to retire on 30 June 1974			
Name		Political party		Name		Political party	
Branson, G. H.	....	Lib.		Prowse, E. W.	....	C.P.	
Cant, H. G. J.	....	A.L.P.		Sim, J. P.	....	Lib.	
Drake-Brockman, T. C., D.F.C.	....	C.P.		Wilkinson, L. D.	....	A.L.P.	
Scott, M. F.	....	Lib.		Willesee, D. R.	....	A.L.P.	
Wheeldon, J. M.	....	A.L.P.		Withers, R. G.	....	Lib.	

A.L.P. = Australian Labor Party. C.P. = Australian Country Party. Lib. = Liberal Party of Australia.

### The House of Representatives

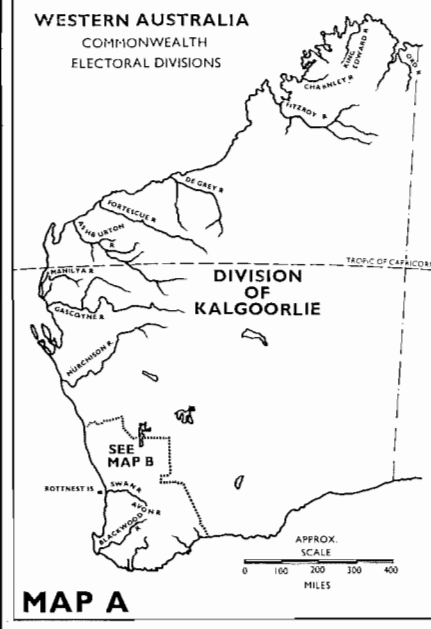
State membership of the House of Representatives is on a population basis with the proviso that each State shall have at least five members. The Constitution provides further that the number of members of the House of Representatives shall be, as nearly as practicable, double the number of Senators. With the enlargement of the Senate from thirty-six to sixty members, the membership of the House of Representatives was increased,

*With the Compliments  
of the  
Deputy Commonwealth Statistician  
and  
Government Statistician*

*Perth,  
Western Australia*

# WESTERN AUSTRALIA COMMONWEALTH ELECTORAL DIVISIONS

WESTERN AUSTRALIA  
COMMONWEALTH  
ELECTORAL DIVISIONS



**MAP A**

**MOORE**

**DIVISION OF KALGOORLIE**

**SEE MAP C** →

**CANNING**

**FORREST**

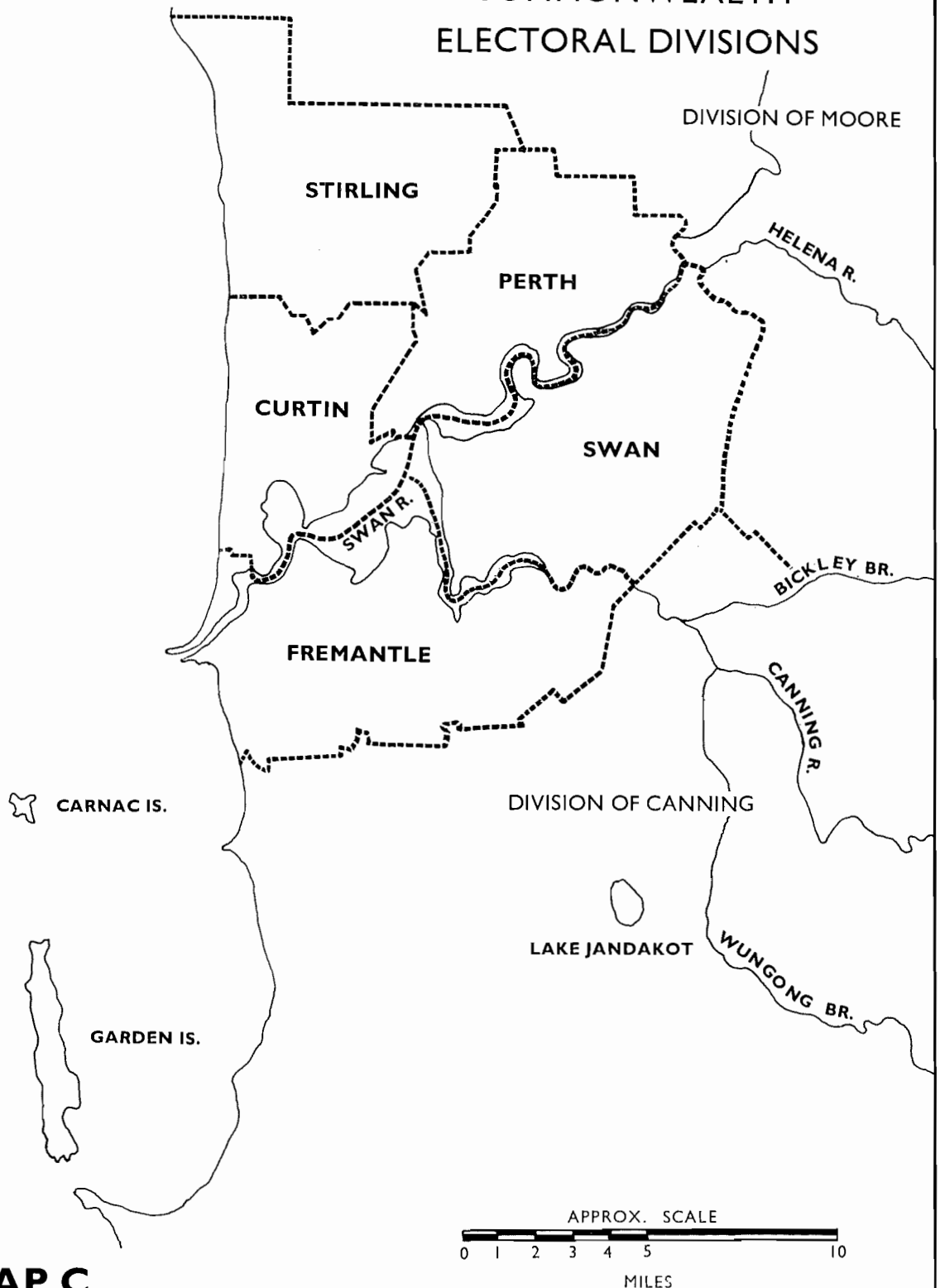
APPROX. SCALE



**MAP B**

# WESTERN AUSTRALIA

## COMMONWEALTH ELECTORAL DIVISIONS



from the date of the 1949 elections, from seventy-four to 121, not including a member for the Australian Capital Territory, which achieved representation for the first time at this election, and a member for the Northern Territory, which had been represented since 1922. Western Australia's population growth had been such as to necessitate an increase in representation from five to eight, and this number was raised to nine in 1955 as a result of a redistribution following the Census of 30 June 1954. At the same time, the total number of members of the House of Representatives was increased to 122, excluding the two members for the Territories.

Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years, by the people of the electorate which they represent. As provided by the *Commonwealth Electoral Act 1918-1966*, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is on the preferential system and is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925.

Elections for the House of Representatives were held on 25 October 1969 and all Western Australian electorates were contested. The following table shows the Western Australian membership of the House before the election and at 31 December 1970.

#### WESTERN AUSTRALIAN MEMBERS OF THE HOUSE OF REPRESENTATIVES

Electoral division	Before election of 25 October 1969		At 31 December 1970	
	Name	Political party	Name	Political party
Canning	Hallett, J. M. ....	C.P.	Hallett, J. M. ....	C.P.
Curtin	Garland, R. V. ....	Lib.	Garland, R. V. ....	Lib.
Forrest	Freeth, Hon. Gordon ....	Lib.	Kirwan, F. McL. ....	A.L.P.
Fremantle	Beazley, K. E. ....	A.L.P.	Beazley, K. E. ....	A.L.P.
Kalgoorlie	Collard, F. W. ....	A.L.P.	Collard, F. W. ....	A.L.P.
Moore	Maisey, D. W. ....	C.P.	Maisey, D. W. ....	C.P.
Perth	Chaney, Hon. F. C., A.F.C. ....	Lib.	Berinson, J. M. ....	A.L.P.
Stirling	Webb, C. H. ....	A.L.P.	Webb, C. H. ....	A.L.P.
Swan	Cleaver, Richard ....	Lib.	Bennett, A. F. ....	A.L.P.

A.L.P. = Australian Labor Party. C.P. = Australian Country Party.  
Lib. = Liberal Party of Australia.

Each electoral division comprises several subdivisions and the names of each subdivision together with the number of electors therein at 25 October 1969 are given in the following table. The area of each division is also shown. Boundaries of the nine divisions appear on the accompanying Maps 'A', 'B' and 'C'.

#### COMMONWEALTH ELECTORAL DIVISIONS AND SUBDIVISIONS

Division		Subdivision	Area (sq miles)	Number of electors
Canning	....	Armadale	....	5,213
	....	Beverley	....	4,524
	....	Gosnells	....	4,175
	....	Katanning	....	7,781
	....	Kwinana	....	6,241
	....	Mandurah	....	5,037
	....	Rockingham	....	5,425
	....	Thornlie	....	3,914
	....	Williams	....	9,551
Total, Division of Canning		....	31,050	51,861
Curtin	....	City Beach	....	3,413
	....	Claremont	....	5,934
	....	Cottesloe	....	9,973
	....	Dalkeith	....	3,636
	....	Floreat Park	....	7,379
	....	Leederville	....	7,581
	....	Nedlands	....	8,307
	....	Subiaco	....	7,338
Total, Division of Curtin		....	28.4	53,561

Division						Subdivision	Area (sq miles)	Number of electors
Forrest	....	....	....	....	....	Albany		7,039
						Bunbury		9,748
						Collie		6,192
						Dardanup		2,873
						Harvey		2,821
						Nelson		8,034
						Plantagenet		6,229
						Sussex		6,635
						Total, Division of Forrest	15,670	49,571
Fremantle	....	....	....	....	....	Applecross		5,236
						Ardross		5,463
						Coolbellup		5,914
						Fremantle		7,895
						Hamilton Hill		3,581
						Melville		8,527
						Palmyra		9,095
						Riverton		5,882
						South Fremantle		6,723
						Total, Division of Fremantle	60.3	58,316
Kalgoorlie	....	....	....	....	....	Boulder		3,815
						Dundas		5,115
						Gascoyne		3,372
						Geraldton		7,780
						Greenough		4,303
						Kalgoorlie		7,459
						Kimberley		3,194
						Leonora		693
						Merredin		2,321
						Murchison		1,205
						Pilbara		4,019
						Yilgarn		1,303
						Total, Division of Kalgoorlie	897,815	44,579
Moore	....	....	....	....	....	Greenmount		4,386
						Kalamunda		9,783
						Midland		6,691
						Moora		7,092
						Northam		7,604
						Pearce		4,276
						Toodyay		5,206
						York		3,791
						Total, Division of Moore	31,175	48,829
Perth	....	....	....	....	....	Bassendean		7,905
						Bayswater		9,816
						Dianella		5,255
						Hyde Park		5,420
						Maylands		3,716
						Menora		3,028
						Morley		4,189
						Mount Lawley		7,994
						North Perth		5,539
						Perth		5,865
						Total, Division of Perth	31.1	58,727
Stirling	....	....	....	....	....	Balcatta		4,761
						Balga		5,472
						Doubleview		6,066
						Innaloo		6,642
						Joondanna		4,991
						Mount Hawthorn		5,772
						Nollamara		5,296
						North Beach		4,072
						Scarborough		4,197
						Woodlands		4,825
						Yokine		6,069
						Total, Division of Stirling	43.5	58,163
Swan	....	....	....	....	....	Belmont		9,620
						Bentley		6,218
						Como		5,370
						East Victoria Park		5,263
						Kensington		5,084
						Manning		5,036
						Queens Park		4,271
						Riverdale		10,858
						South Perth		5,106
						Victoria Park		3,695
						Total, Division of Swan	46.7	60,521

## THE STATE PARLIAMENT

The Crown, represented by the Governor, and the Parliament, comprising a Legislative Council and a Legislative Assembly, constitute the legislature of Western Australia.

Executive government is based, as in the case of the Commonwealth and in other States, on the system which evolved in Great Britain in the eighteenth century and which is generally known as the 'Cabinet' system. The Cabinet consists of Ministers of the Crown chosen for the Ministry from members of Parliament belonging to the political party, or coalition of parties, which is in the majority in the Legislative Assembly. The Constitution requires that at least one of the Ministers be selected from members of the Legislative Council. In Western Australia, as in the other Australian States, the office of principal Minister is designated 'Premier'.

Since 1890, when responsible government was granted to Western Australia, there have been twenty-three separate Ministries as shown in the following table. No organised political party existed in the Colony until the formation of a Labour party in the 1890s. A Labour Ministry assumed office in 1904. As no previous Ministry had a specific party designation, the table has been annotated accordingly.

## MINISTRIES FROM 1890

Name of Premier	Political party	Date of assumption of office	Duration		
			Years	Months	Days
Forrest ....	(a)	1890—29 December ....	10	1	17
Throssell ....		1901—15 February ....	—	3	12
Leake ....		27 May ....	—	5	25
Morgans ....		21 November ....	—	1	2
Leake ....		23 December ....	—	6	8
James ....	Labour ..... Liberal ..... " ..... Labour ..... Liberal ..... " ..... " ..... Nat. and C.P. (coalition) ..... Labour ..... Nat. and C.P. (coalition) ..... Labour ..... " ..... " ..... L.C.L. and C.P. (coalition) ..... Labour ..... L.C.L. and C.P. (coalition) .....	1902—1 July ....	2	1	9
Daglish ....		1904—10 August ....	1	—	15
Rason ....		1905—25 August ....	—	8	12
Moore ....		1906—7 May ....	4	4	9
Wilson ....		1910—16 September ....	1	—	21
Scaddan ....		1911—7 October ....	4	9	20
Wilson ....		1916—27 July ....	—	11	1
Lefroy ....		1917—28 June ....	1	9	20
Colebatch ....		1919—17 April ....	—	1	—
Mitchell ....		17 May ....	4	10	30
Collier ....		1924—16 April ....	6	—	8
Mitchell ....		1930—24 April ....	3	—	—
Collier ....		1933—24 April ....	3	3	27
Willcock ....		1936—20 August ....	8	11	11
Wise ....		1945—31 July ....	1	8	1
McLarty ....		1947—1 April ....	5	10	22
Hawke ....		1953—23 February ....	6	1	10
Brand ....		1959—2 April ....	Still in office (b)		

C.P. = Country Party. L.C.L. = Liberal and Country League (c). Nat. = Nationalist.

(a) No specific party designation. (b) At 31 December 1970. (c) The name of the Party was changed to *The Liberal Party of Australia (Western Australian Division) Incorporated* on 15 July 1969.

The Constitution Act of 1889 provided for a Ministry of five members. This number was increased to six by an amendment to the Act in 1896, to eight by another amendment in 1927, and to ten by the *Acts Amendment (Increase in Number of Ministers of the Crown) Act, 1950*. The present Ministry consists of twelve members, as authorised by the *Constitution Acts Amendment Act, 1965*. The names of the Ministers and the portfolios held by them at 31 December 1970 are shown in the following list.

Details of the Ministry following the elections of 20 February 1971 appear in the *Appendix*.

## THE MINISTRY AT 31 DECEMBER 1970 (a)

Name of Minister	Title of office
Hon. Sir David Brand, K.C.M.G., M.L.A.	Premier, Treasurer and Minister for Tourists
Hon. Crawford David Nalder, M.L.A. ....	Deputy Premier and Minister for Agriculture and Electricity
Hon. Charles Walter Michael Court, O.B.E., M.L.A.	Minister for Industrial Development and the North-West
Hon. Edgar Henry Mead Lewis, M.L.A.	Minister for Education and Native Welfare
Hon. Arthur Frederick Griffith, M.L.C.	Minister for Mines and Justice, and Leader of the Government in the Legislative Council
Hon. William Stewart Bovell, M.L.A. ....	Minister for Lands, Forests and Immigration
Hon. Ross Hutchinson, D.F.C., M.L.A. ....	Minister for Works and Water Supplies
Hon. Leslie Arthur Logan, M.L.C. ....	Minister for Local Government, Town Planning and Child Welfare
Hon. James Frederick Craig, M.L.A. ....	Chief Secretary and Minister for Police and Traffic
Hon. Desmond Henry O'Neil, M.L.A. ....	Minister for Housing and Labour
Hon. Raymond James O'Connor, M.L.A.	Minister for Transport and Railways
Hon. Graham Charles MacKinnon, M.L.C.	Minister for Health, Fisheries and Fauna, and Environmental Protection

(a) Membership has remained unchanged since the Ministry of twelve was first constituted on 17 August 1965.

The right to vote at parliamentary elections was extended to women by the *Constitution Acts Amendment Act, 1899* and membership of either House was provided for by the *Parliament (Qualification of Women) Act, 1920*. The first woman member of any Australian Parliament was Mrs Edith Dircksey Cowan, O.B.E., who was elected to the Legislative Assembly in March 1921 as member for West Perth. Mrs A. F. G. (later Dame Florence) Cardell-Oliver, M.L.A. for Subiaco, became the first woman Cabinet Minister in Australia when she joined the McLarty Ministry in 1947.

Payment of members was introduced in 1900 by a Payment of Members Act and a superannuation fund is established under the *Parliamentary Superannuation Act, 1970*. The latter Act replaces the *Parliamentary Superannuation Act, 1948-1968* which came into operation on 1 January 1949.

### The Legislative Council

The Legislative Council consists of thirty members, each of the fifteen Electoral Provinces into which the State is divided being represented by two members. Election is for a term of six years and one-half of the members retire every three years.

The qualifications of a candidate for election to the Legislative Council are that he or she shall be at least twenty-one years of age, shall have resided in Western Australia for a minimum of one year, be a natural-born or naturalised British subject, and be enrolled, or qualified for enrolment, as an elector. No person may hold office as a Member of the Legislative Council and a Member of the Legislative Assembly at the same time. A Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or a person who has been attainted or convicted of treason or felony may not be elected to the Legislative Council. The qualifications for election as a Member of the Legislative Council are thus identical with those necessary for election as a Member of the Legislative Assembly.

The *Electoral Act, 1907-1970* requires that to qualify for enrolment as an elector a person shall be at least twenty-one years of age, be a natural-born or naturalised British subject, shall have lived in the Commonwealth of Australia for six months continuously, and shall have lived in Western Australia for three months continuously and in the district for which he claims enrolment for a continuous period of one month immediately preceding the date of his claim. A person is disqualified from enrolment if he is of unsound mind, has been attainted of treason, has been convicted and is serving sentence for any offence punishable by imprisonment for one year or longer, is the holder of a temporary entry permit for the purposes of the *Migration Act 1958-1966* (Commonwealth) or is a



prohibited immigrant under that Act. Enrolment is compulsory under the *Electoral Act Amendment Act, 1964* for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and, as provided by the foregoing Act, is compulsory for all enrolled persons.

Under the Electoral Districts Act, the State is divided into a Metropolitan Area, consisting of five electoral provinces, an Agricultural, Mining and Pastoral Area with eight provinces, and a North-West-Murchison-Eyre Area with two provinces. The names and boundaries of these fifteen electoral provinces, together with those of the fifty-one component electoral districts, were given in the 1969 issue of the Year Book.

A conjoint election for the Legislative Council and the Legislative Assembly took place on 23 March 1968. The Legislative Council election was held for the purpose of filling fifteen vacancies caused by the expiration of the term of office of those members of the Council who were due to retire on 21 May 1968. The strengths of the political parties in the Legislative Council were unchanged by the election and the following table shows the composition of the Council at 31 December 1970.

## MEMBERS OF THE LEGISLATIVE COUNCIL AT 31 DECEMBER 1970

Name	Political party	Electoral province
DUE TO RETIRE IN 1971 (a) (b)		
Abbey, Hon. C. R. ....	Lib.	West
Baxter, Hon. N. E. ....	C.P.	Central
Brand, Hon. G. E. D. ....	Lib.	Lower North
Ferry, Hon. V. J., D.F.C. ....	Lib.	South-West
Garrigan, Hon. J. J. ....	A.L.P.	South-East
Griffith, Hon. A. F. ....	Lib.	North Metropolitan
Griffiths, Hon. C. E. ....	Lib.	South-East Metropolitan
Heitman, Hon. Jack ....	Lib.	Upper West
Hislop, Hon. J. G., M.B., Ch.B., F.R.C.P., F.R.A.C.P.	Lib.	Metropolitan
House, Hon. E. C., D.F.C., D.F.M. ....	C.P.	South
Hutchison, Hon. Ruby F. ....	A.L.P.	North-East Metropolitan
Lavery, Hon. F. R. H. ....	A.L.P.	South Metropolitan
McNeill, Hon. Neil, B.Sc. (Agric.) ....	Lib.	Lower West
Perry, Hon. T. O. ....	C.P.	Lower Central
Wise, Hon. F. J. S. ....	A.L.P.	North

## DUE TO RETIRE IN 1974 (a)

Berry, Hon. G. W. ....	Lib.	Lower North
Claughton, Hon. R. F., B.A. ....	A.L.P.	North Metropolitan
Diver, Hon. L. C. ....	C.P.	Central
Dolan, Hon. John ....	A.L.P.	South-East Metropolitan
Logan, Hon. L. A. ....	C.P.	Upper West
MacKinnon, Hon. G. C. ....	Lib.	Lower West
Medcalf, Hon. I. G., E.D., LL.B. ....	Lib.	Metropolitan
Strickland, Hon. H. C. ....	A.L.P.	North
Stubbs, Hon. R. H. C. ....	A.L.P.	South-East
Thompson, Hon. Ronald ....	A.L.P.	South Metropolitan
Thompson, Hon. S. T. J. ....	C.P.	Lower Central
Thomson, Hon. J. M. ....	C.P.	South
White, Hon. F. R. ....	C.P.	West
Willesee, Hon. W. F. ....	A.L.P.	North-East Metropolitan
Willmott, Hon. F. D. ....	Lib.	South-West

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = The Liberal Party of Australia (Western Australian Division) Incorporated.

(a) Section 8 of the *Constitution Acts Amendment Act, 1899-1965* provides that a retiring member shall vacate his seat on 21 May in the year of retirement. (b) See also *Appendix*.

### The Legislative Assembly

There are fifty-one members of the Legislative Assembly, each member representing one of the fifty-one Electoral Districts into which the State is divided for the purpose. Members are elected for the duration of the Parliament, which is limited to three years.

The following table shows the membership of the Assembly at 31 December 1970.

MEMBERS OF THE LEGISLATIVE ASSEMBLY  
AT 31 DECEMBER 1970 (a)

Name	Political party	Electoral district
Bateman, Thomas Henry	A.L.P.	Canning
Bertram, Ronald Edward, A.A.S.A.	A.L.P.	Mount Hawthorn
Bickerton, Arthur William	A.L.P.	Pilbara
Bovell, Hon. William Stewart	Lib.	Vasse
Brady, John Joseph	A.L.P.	Swan
Brand, Hon. Sir David, K.C.M.G.	Lib.	Greenough
Burke, Terrence Joseph	A.L.P.	Perth
Burt, Richard Paull Septimus	Lib.	Murchison-Eyre
Cash, Earl Douglas, B.A., J.P.	Lib.	Mirrabooka
Cook, Wyndham Truran (b)	A.L.P.	Albany
Court, Hon. Charles Walter Michael, O.B.E.	Lib.	Nedlands
Craig, Hon. James Frederick	C.P.	Toodyay
Davies, Ronald	A.L.P.	Victoria Park
Dunn, Kenneth Wathen	Lib.	Darling Range
Evans, Hywel David, B.A.	A.L.P.	Warren
Evans, Thomas Daniel	A.L.P.	Kalgoorlie
Fletcher, Harry Arthur	A.L.P.	Fremantle
Gayfer, Harry Walter	C.P.	Avon
Graham, Hon. Herbert Ernst	A.L.P.	Balcatta
Grayden, William Leonard	Lib.	South Perth
Guthrie, Hon. Hugh Norman	Lib.	Subiaco
Harman, John Joseph	A.L.P.	Maylands
Henn, Guy Gavin, M.R.C.S., L.R.C.P.	Lib.	Wembley
Hutchinson, Hon. Ross, D.F.C.	Lib.	Cottesloe
Jamieson, Colin John	A.L.P.	Belmont
Jones, Thomas Henry	A.L.P.	Collie
Kitney, Ronald Wilfred	C.P.	Blackwood
Lapham, Stanley Edward, A.A.S.A.	A.L.P.	Karrinyup
Lewis, Hon. Edgar Henry Mead	C.P.	Moore
Manning, Iven Wemyss	Lib.	Wellington
Manning, William Allan, A.A.S.A., A.C.I.S.	C.P.	Narrogin
May, Donald George	A.L.P.	Clontarf
McIver, Kenneth Finlay	A.L.P.	Northam
McPharlin, Walter Raymond	C.P.	Mount Marshall
Mensaros, Andrew	Lib.	Floreat
Mitchell, Clayton Clealand Bickley	C.P.	Stirling
Moir, Arthur McAlister	A.L.P.	Boulder-Dundas
Nalder, Hon. Crawford David	C.P.	Katanning
Norton, Daniel	A.L.P.	Gascoyne
O'Connor, Hon. Raymond James	Lib.	Mount Lawley
O'Neil, Hon. Desmond Henry	Lib.	East Melville
Ridge, Keith Alan	Lib.	Kimberley
Runciman, Ewart	Lib.	Murray
Rushton, Edgar Cyril	Lib.	Dale
Sewell, William Hawkins	A.L.P.	Geraldton
Stewart, Jack McKay	Lib.	Merredin-Yilgarn
Taylor, Alexander Donald, B.A.	A.L.P.	Cockburn
Toms, John Mervin	A.L.P.	Ascot
Tonkin, Hon. John Trezise	A.L.P.	Melville
Williams, Maurice Clifford	Lib.	Bunbury
Young, William Gordon	C.P.	Roe

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = The Liberal Party of Australia (Western Australian Division) Incorporated.

(a) See also *Appendix*. (b) Elected at by-election held 6 June 1970 to fill vacancy caused by the resignation of Mr J. Hall with effect from 14 April 1970.

A candidate for election must have resided in Western Australia for twelve months, be at least twenty-one years of age, be a natural-born or naturalised British subject, and be enrolled or qualified for enrolment, as an elector at Legislative Assembly elections. No person is qualified to be a Member of the Legislative Assembly if he is a member of the Legislative Council, a Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or has been attainted or convicted of treason or felony.

The qualifications and disqualifications applying to enrolment as an elector of the Legislative Assembly are the same as those prescribed for electors of the Legislative Council and enumerated in the preceding section *The Legislative Council*. As provided by the *Electoral Amendment Act, 1919* enrolment is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and is compulsory for all enrolled persons as provided by the *Electoral Act Amendment Act, 1936*.

## ELECTIONS, ELECTORS ON ROLL AND VOTES RECORDED

### The Federal Parliament

General elections for the House of Representatives were held on 25 October 1969. The Liberal-Country Party Government was returned to office with a majority of seven seats, instead of forty seats as in the previous Parliament.

Elections for the Senate took place on 25 November 1967. As a result, Government representation in the Senate from 1 July 1968 was reduced from twenty-nine to twenty-eight. Elections held on 25 October 1969 to fill two vacancies in the Senate (one for the State of Victoria and one for the State of South Australia) resulted in Government representation being reduced to twenty-seven with effect from 1 July 1970

### FEDERAL PARLIAMENT—ELECTORS ON ROLL AND VOTES RECORDED

Electoral division	Electors enrolled	Primary votes recorded							Number of voters		
		Liberal Party of Australia	Australian Country Party	Australian Labor Party	Australian Democratic Labor Party	Australia Party	Independent	Informal	Total	Per cent of enrolled electors	
HOUSE OF REPRESENTATIVES—GENERAL ELECTION OF 25 OCTOBER 1969											
Canning .....	51,861	10,722	14,445	20,245	2,617	(a)	(a)	1,506	49,535	95.51	
Curtin .....	53,561	24,855	(a)	17,275	3,533	1,151	3,047	1,177	51,038	95.29	
Forrest .....	49,571	19,955	(a)	22,149	3,332	1,106	(a)	1,132	47,674	96.17	
Fremantle .....	58,316	17,520	(a)	34,336	2,417	(a)	(a)	1,206	55,479	95.14	
Kalgoorlie .....	44,579	14,064	(a)	23,138	1,983	(a)	(a)	744	39,929	89.57	
Moore .....	48,829	9,856	13,968	18,829	2,390	(a)	(a)	1,162	46,205	94.63	
Perth .....	58,727	20,373	(a)	29,309	2,159	(a)	1,308	1,866	55,015	93.68	
Stirling .....	58,163	20,146	(a)	28,468	3,422	1,540	(a)	1,562	55,138	94.80	
Swan .....	60,521	22,982	(a)	28,960	2,608	879	(a)	1,344	56,773	93.81	
Total, Western Australia	484,128	160,473	28,413	222,709	24,461	4,676	4,355	11,699	456,786	94.35	

### SENATE—ELECTION OF 25 NOVEMBER 1967

Canning .....	46,796	11,541	11,720	15,410	2,742		357	3,132	44,902	95.95
Curtin .....	43,969	19,105	2,177	13,918	3,407		687	2,275	41,569	94.54
Forrest .....	44,634	13,189	6,795	17,581	2,492		307	2,778	43,142	96.66
Fremantle .....	57,656	17,944	2,340	27,737	3,560		501	3,174	55,256	95.84
Kalgoorlie .....	36,043	9,546	2,847	15,502	2,067	(a)	250	2,679	32,891	91.25
Moore .....	46,770	10,907	11,151	16,508	2,785		413	2,641	44,405	94.94
Perth .....	30,278	9,716	1,311	11,626	2,383		345	2,755	28,136	92.93
Stirling .....	75,527	21,978	3,315	34,559	6,325		635	4,694	71,506	94.68
Swan .....	60,284	17,313	3,206	26,992	4,826		556	3,704	56,597	93.88
Total, Western Australia	441,957	131,239	44,862	179,833	30,587	....	4,051	27,832	418,404	94.67

(a) No candidate.

LEGISLATIVE COUNCIL AND LEGISLATIVE ASSEMBLY  
CONJOINT ELECTION OF 23 MARCH 1968

LEGISLATIVE COUNCIL

Electoral area (a) and province	Electors on roll			Electoral area (a) and province	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and			
Metropolitan (b) ....	28,371	34,248	62,619	Pastoral Area (con-			
North Metropolitan ....	30,785	33,293	64,078	tinued)—			
North-East Metropoli-				South-East (b) ....	9,889	8,562	18,451
tan (b) ....	30,320	32,319	62,639	South-West (b) ....	9,133	8,487	17,620
South Metropolitan ....	25,113	26,030	51,143	Upper West (b) ....	9,969	8,901	18,870
South-East Metropolitan	24,340	27,331	51,671	West ....	9,818	9,824	19,642
Total ....	138,929	153,221	292,150	Total ....	76,428	70,983	147,411
Agricultural, Mining and				North-West-Murchison-			
Pastoral Area—				Eyre Area—			
Central (b) ....	9,310	8,439	17,749	Lower North ....	2,516	1,937	4,453
Lower Central ....	9,017	8,413	17,430	North (b) ....	3,015	2,093	5,108
Lower West (b) ....	9,665	9,233	18,898	Total ....	5,531	4,030	9,561
South (b) ....	9,627	9,124	18,751	WHOLE STATE	220,888	228,234	449,122
Electors on roll in contested provinces ....					101,589	106,828	208,417
Electors on roll in uncontested provinces ....					119,299	121,406	240,705
Total number of electors on roll ....					220,888	228,234	449,122
Total number of votes recorded ....					(c)	(c)	(d) 192,342
Percentage of votes recorded to electors on roll in contested provinces ....					(c)	(c)	92.29

LEGISLATIVE ASSEMBLY

Electoral area (a) and district	Electors on roll			Electoral area (a) and district	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and			
Ascot ....	6,028	6,379	12,407	Pastoral Area (con-			
Balcatta ....	7,012	7,117	14,129	tinued)—			
Belmont ....	5,953	6,271	12,224	Collie ....	2,944	2,708	5,652
Canning ....	6,974	7,306	14,280	Dale ....	3,579	3,553	7,132
Clontarf ....	5,920	6,839	12,759	Darling Range ....	3,347	3,510	6,857
Cockburn ....	7,030	6,791	13,821	Geraldton ....	3,106	3,048	6,154
Cottesloe ....	5,551	7,441	12,992	Greenough (e) ....	3,497	2,937	6,434
East Melville ....	6,375	6,976	13,351	Kalgoorlie (e) ....	3,239	2,891	6,130
Floreat ....	5,747	6,189	11,936	Katanning (e) ....	2,945	2,772	5,717
Fremantle ....	5,845	5,872	11,717	Merredin-Yilgarn ....	3,362	2,743	6,105
Karrinyup ....	5,641	6,287	11,928	Moore ....	3,366	2,916	6,282
Maylands ....	5,579	6,396	11,975	Mount Marshall (e) ....	3,213	2,788	6,001
Melville ....	5,863	6,391	12,254	Murray ....	3,478	3,173	6,651
Mirrabooka ....	6,720	7,068	13,788	Narrogin (e) ....	3,128	2,933	6,061
Mount Hawthorn ....	6,150	6,400	12,550	Northam ....	3,044	2,878	5,922
Mount Lawley ....	5,788	6,814	12,602	Roe ....	3,679	3,139	6,818
Nedlands ....	5,610	6,994	12,604	Stirling (e) ....	3,231	2,910	6,141
Perth ....	6,043	6,444	12,487	Toodyay ....	2,892	2,761	5,653
South Perth ....	5,853	6,670	12,523	Vasse (e) ....	2,894	2,885	5,779
Subiaco ....	5,420	7,180	12,600	Warren ....	3,249	2,926	6,175
Swan ....	6,040	6,205	12,245	Wellington (e) ....	3,017	2,832	5,849
Victoria Park (e) ....	5,593	6,516	12,109	Total ....	76,428	70,983	147,411
Wembley (e) ....	6,194	6,675	12,869	North-West-Murchison-			
Total ....	138,929	153,221	292,150	Eyre Area—			
Agricultural, Mining and				Gascoyne ....	1,421	1,153	2,574
Pastoral Area—				Kimberley ....	1,623	1,164	2,787
Albany ....	2,717	3,075	5,792	Murchison-Eyre (e) ....	1,095	784	1,879
Avon (e) ....	3,053	2,773	5,826	Pilbara (e) ....	1,392	929	2,321
Blackwood ....	2,990	2,676	5,666	Total ....	5,531	4,030	9,561
Boulder-Dundas (e) ....	3,288	2,928	6,216	WHOLE STATE	220,888	228,234	449,122
Bunbury ....	3,170	3,228	6,398		175,109	184,681	359,790
Electors on roll in contested districts ....					45,779	43,553	89,332
Electors on roll in uncontested districts ....					220,888	228,234	449,122
Total number of electors on roll ....					(c)	(c)	(f) 331,325
Total number of votes recorded ....					(c)	(c)	92.09
Percentage of votes recorded to electors on roll in contested districts ....					(c)	(c)	

(a) As defined in the *Electoral Districts Act, 1947-1965*.  
includes 8,631 informal votes.

(e) Uncontested District.

(b) Uncontested Province.

(f) Includes 10,255 informal votes.

(c) Not available.

(d) In-

### The State Parliament

At the conjoint election for the Legislative Council and the Legislative Assembly which was held on 23 March 1968 the Liberal-Country Party Government, led by the Honourable (now Sir) David Brand, was returned to office, its majority in the Legislative Assembly being reduced from eight seats to five seats. Government representation in the Legislative Council was unchanged.

All Ministers holding office prior to the election were re-elected to Parliament and retained the portfolios held by them in the previous Parliament.

The table on page 104 shows the number of electors enrolled in each Province and in each District. The numbers of effective and informal votes recorded throughout the State at the election are also shown.

It will be seen from the table that the number of electors enrolled in each District in the Metropolitan Area was approximately twice the number in each District in the Agricultural, Mining and Pastoral Area. This is accounted for by a requirement of the *Electoral Districts Act, 1947-1965* that the Electoral Commissioners, in determining the quota of electors for each District, should reckon every two electors in the Metropolitan Area as one elector, at the same time giving full representation to each elector in the Agricultural, Mining and Pastoral Area. The number of Districts in the North-West-Murchison-Eyre Area was fixed by the Act at four.

Results of the conjoint election held on 20 February 1971 appear in the *Appendix*.

## LEGISLATION DURING 1969

### The Federal Parliament

The legislative enactments of the Commonwealth Parliament in 1969 are listed in summarised form on pages 79-82 of the *Official Year Book of the Commonwealth of Australia*, No. 56—1970.

### The State Parliament

During the second and third periods of the first session of the twenty-sixth Parliament, which lasted from 25 March to 6 May 1969, and 17 June to 19 June 1969, respectively, and the first period of the second session, which lasted from 31 July to 12 November 1969, the Western Australian legislature enacted 117 Public Statutes.

The titles and a brief summary of the Acts passed by the State Parliament during 1969 (*i.e.* those enacted during the periods specified in the previous paragraph) are given below. The full text of the legislation enacted is contained in the volumes of *The Acts of the Parliament of Western Australia*, to which reference should be made if further details are required.

#### ACTS PASSED DURING 1969

No. of Act	Short title and summary
27	Acts Amendment (Superannuation) Act. Amends the <i>Superannuation and Family Benefits Act, 1938-1968</i> and the <i>Superannuation Act, 1871-1967</i> .
2	Administration Act Amendment Act. Amends the <i>Administration Act, 1903-1966</i> .
39	Agent General Act Amendment Act. Amends the <i>Agent General Act, 1895-1957</i> .
25	Air Navigation Act Amendment Act. Amends the <i>Air Navigation Act, 1937-1945</i> .
22	Alumina Refinery (Mitchell Plateau) Agreement Act. Ratifies an agreement between the State and Amax Bauxite Corporation relating to the establishment of a refinery to produce alumina, and provides for carrying the agreement into effect.
75	Alumina Refinery (Pinjarra) Agreement Act. Ratifies an agreement between the State and Western Aluminium No Liability for the establishment of a refinery near Pinjarra to produce alumina.
116	Appropriation Act (Consolidated Revenue Fund).
117	Appropriation Act (General Loan Fund).
76	Architects Act Amendment Act. Amends the <i>Architects Act, 1921-1965</i> .

## ACTS PASSED DURING 1969—continued

No. of Act	Short title and summary
77	Associations Incorporation Act Amendment Act. Amends the <i>Associations Incorporation Act, 1895-1962</i> .
16	Banana Industry Compensation Trust Fund Act Amendment Act. Amends the <i>Banana Industry Compensation Trust Fund Act, 1961-1964</i> .
9	Brands Act Amendment Act. Amends the <i>Brands Act, 1904-1967</i> .
101	Bush Fires Act Amendment Act. Amends the <i>Bush Fires Act, 1954-1965</i> .
14	Cattle Industry Compensation Act Amendment Act. Amends the <i>Cattle Industry Compensation Act, 1965</i> .
85	Child Welfare Act Amendment Act. Amends the <i>Child Welfare Act, 1947-1968</i> .
66	Church of England (Diocesan Trustees) Act Amendment Act. Amends the <i>Church of England (Diocesan Trustees) Act, 1888</i> .
82	City of Perth Parking Facilities Act Amendment Act. Amends the <i>City of Perth Parking Facilities Act, 1956-1965</i> .
36	Coal Mine Workers (Pensions) Act Amendment Act. Amends the <i>Coal Mine Workers (Pensions) Act, 1943-1965</i> .
50	Collie Recreation and Park Lands Act Repeal Act. Repeals the <i>Collie Recreation and Park Lands Act, 1931-1944</i> .
98	Companies Act Amendment Act. Amends the <i>Companies Act, 1961-1966</i> .
111	Constitution Acts Amendment Act. Amends the <i>Constitution Acts Amendment Act, 1899-1965</i> .
43	Co-operative and Provident Societies Act Amendment Act. Amends the <i>Co-operative and Provident Societies Act, 1903-1947</i> .
1	Criminal Code Amendment Act. Amends the Criminal Code.
51	Dairy Industry Act Amendment Act. Amends the <i>Dairy Industry Act, 1922-1953</i> .
84	District Court of Western Australia Act. Repeals the <i>Courts of Session Act, 1921</i> and establishes The District Court of Western Australia.
5	Dividing Fences Act Amendment Act. Amends the <i>Dividing Fences Act, 1961</i> .
91	Education Act Amendment Act. Amends the <i>Education Act, 1928-1968</i> to make provision for the establishment of a Board of Secondary Education.
65	Exmouth Gulf Solar Salt Industry Agreement Act. Approves an agreement between the State and Exmouth Salt Pty. Ltd. relating to the establishment and subsequent operations of a solar salt industry and other allied mining and ancillary industries in the Exmouth Gulf area.
13	Exotic Stock Diseases (Eradication Fund) Act. Repeals the <i>Foot and Mouth Disease Eradication Fund Act, 1959-1966</i> . Establishes a Fund for the payment of compensation to owners of animals and property destroyed, and of animals dying in the course of steps taken to eradicate or prevent the spread of 'exotic diseases' in livestock or poultry.
99	Fauna Conservation Act Amendment Act. Amends the <i>Fauna Conservation Act, 1950-1967</i> .
81	Firearms and Guns Act Amendment Act. Amends the <i>Firearms and Guns Act, 1931-1968</i> .
4	Fisheries Act Amendment Act. Amends the <i>Fisheries Act, 1905-1967</i> .
61	Fisheries Act Amendment Act (No. 2). Amends the <i>Fisheries Act, 1905-1969</i> .
92	Forests Act Amendment Act. Amends the <i>Forests Act, 1918-1964</i> .
80	Fremantle Port Authority Act Amendment Act. Amends the <i>Fremantle Port Authority Act, 1902-1965</i> .
89	Hospitals Act Amendment Act. Amends the <i>Hospitals Act, 1927-1955</i> .
18	Inspection of Machinery Act Amendment Act. Amends the <i>Inspection of Machinery Act, 1921-1958</i> .
67	Inspection of Machinery Act Amendment Act (No. 2). Amends the <i>Inspection of Machinery Act, 1921-1969</i> .
79	Iron Ore (Cleveland-Cliffs) Agreement Act Amendment Act. Amends the <i>Iron Ore (Cleveland-Cliffs) Agreement Act, 1964</i> .
78	Iron Ore (Dampier Mining Company Limited) Agreement Act. Ratifies an agreement between the State and Dampier Mining Company Limited relating to certain iron-ore deposits.
26	Judges' Salaries and Pensions Act Amendment Act. Amends the <i>Judges' Salaries and Pensions Act, 1950-1966</i> .
45	Lake Lefroy (Coolgardie-Esperance Wharf) Railway Act. Authorises the construction of a railway to connect the Coolgardie-Esperance railway to the Esperance land-backed wharf, and the construction of a spur railway to Lake Lefroy.
23	Lake Lefroy Salt Industry Agreement Act. Approves an agreement between the State and Norseman Gold Mines No Liability relating to the establishment and subsequent operations of an industry for the mining and sale of salt and of other allied mining and ancillary industries.
29	Land Act Amendment Act. Amends Part VI of the <i>Land Act, 1933-1968</i> .
55	Land Act Amendment Act (No. 2). Amends the <i>Land Act, 1933-1969</i> .
93	Land Act Amendment Act (No. 3). Amends the <i>Land Act, 1933-1969</i> .

## ACTS PASSED DURING 1969—continued

No. of Act	Short title and summary
40	Land Agents Act Amendment Act. Amends the <i>Land Agents Act, 1921–1966</i> .
96	Land Tax Act Amendment Act. Amends the <i>Land Tax Act, 1948–1968</i> .
95	Land Tax Assessment Act Amendment Act. Amends the <i>Land Tax Assessment Act, 1907–1968</i> .
60	Legal Contribution Trust Act Amendment Act. Amends the <i>Legal Contribution Trust Act, 1967</i> .
59	Legal Practitioners Act Amendment Act. Amends the <i>Legal Practitioners Act, 1893–1967</i> .
63	Licensing Act Amendment Act. Amends the <i>Licensing Act, 1911–1967</i> .
87	Licensing Act Amendment Act (No. 2). Amends the <i>Licensing Act, 1911–1969</i> .
109	Loan Act. Authorises the raising of a sum of \$65,861,000 by loan for the construction of certain public works and for other purposes.
35	Local Government Act Amendment Act. Amends section 374 of the <i>Local Government Act, 1960–1968</i> .
83	Local Government Act Amendment Act (No. 4). Amends the <i>Local Government Act, 1960–1969</i> .
107	Local Government Act Amendment Act (No. 5). Amends the <i>Local Government Act, 1960–1969</i> .
47	Main Roads Act Amendment Act. Amends the <i>Main Roads Act, 1930–1967</i> .
86	Manjimup Canned Fruits and Vegetables Industry Agreement Act. Ratifies an agreement between the State and Shepparton Preserving Company Limited relating to the establishment and subsequent operations at Manjimup of a plant for the processing, canning and packing of fruits and vegetables.
110	Marketing of Eggs Act Amendment Act. Continues the operation of, and amends the <i>Marketing of Eggs Act, 1945–1965</i> .
115	Marketing of Linseed Act. Establishes the Western Australian Linseed Board and provides for the marketing of linseed by the Board.
62	Methodist Church (W.A.) Property Trust Incorporation Act. Constitutes the Methodist Church (W.A.) Property Trust and defines its powers, authorities and functions.
73	Metropolitan Market Act Amendment Act. Amends the <i>Metropolitan Market Act, 1926–1962</i> .
104	Metropolitan Region Town Planning Scheme Act Amendment Act. Amends section 36 of the <i>Metropolitan Region Town Planning Scheme Act, 1959–1968</i> .
8	Metropolitan Water Supply, Sewerage, and Drainage Act Amendment Act. Amends the <i>Metropolitan Water Supply, Sewerage, and Drainage Act, 1909–1968</i> .
19	Mines and Machinery Inspection Act Repeal Act. Repeals the <i>Mines and Machinery Inspection Act, 1911</i> .
100	Mines Regulation Act Amendment Act. Amends the <i>Mines Regulation Act, 1946–1968</i> .
17	Mining Act Amendment Act. Amends section 26 of the <i>Mining Act, 1904–1968</i> .
21	Motor Vehicle (Third Party Insurance) Act Amendment Act (No. 2). Amends the <i>Motor Vehicle (Third Party Insurance) Act, 1943–1967</i> .
90	Museum Act. Repeals the <i>Museum Act, 1959–1964</i> . Constitutes The Western Australian Museum and provides for the re-establishment, control and management of the museum and the preservation of historic wrecks.
41	Northern Developments Pty. Limited Agreement Act. Approves an agreement between the State and Northern Developments Pty. Limited relating to the disposal of certain Crown lands.
97	Northern Developments Pty. Limited Agreement Act Amendment Act. Amends the <i>Northern Developments Pty. Limited Agreement Act, 1969</i> .
44	Noxious Weeds Act Amendment Act. Amends the <i>Noxious Weeds Act, 1950–1965</i> .
3	Offenders Probation and Parole Act Amendment Act. Amends the <i>Offenders Probation and Parole Act, 1963–1965</i> .
56	Ord River Dam Catchment Area (Straying Cattle) Act Amendment Act. Amends the <i>Ord River Dam Catchment Area (Straying Cattle) Act, 1967</i> .
112	Petroleum Pipelines Act. Provides for the licensing of the construction and operation of pipelines for the conveyance of petroleum in a gaseous, liquid or solid state.
42	Pig Industry Compensation Act Amendment Act. Amends the <i>Pig Industry Compensation Act, 1942–1965</i> .
7	Plant Diseases Act Amendment Act. Amends the <i>Plant Diseases Act, 1914–1967</i> .
68	Plant Diseases Act Amendment Act (No. 2). Amends section 5 of the <i>Plant Diseases Act, 1914–1969</i> .
6	Poisons Act Amendment Act. Amends the <i>Poisons Act, 1964–1967</i> .
24	Police Act Amendment Act. Amends the <i>Police Act, 1892–1968</i> .
15	Poultry Industry (Trust Fund) Act Amendment Act. Amends section 18 of the <i>Poultry Industry (Trust Fund) Act, 1948–1951</i> .

ACTS PASSED DURING 1969—*continued*

No. of Act	Short title and summary
74	Prisons Act Amendment Act. Amends the <i>Prisons Act, 1903–1964</i> to make provision for the grant of leave of absence to certain prisoners.
32	Property Law Act. Amends and consolidates the law relating to property. Repeals various State Acts and specifies certain Acts of England and the United Kingdom which cease to have effect in Western Australia.
10	Reserves Act Amendment Act. Amends section 13 of the <i>Reserves Act, 1967</i> .
105	Reserves Act. Varies the provisions relating to certain reserves and other lands.
94	Road Closure Act. Provides for the closure of portion of Mount Street in the City of Perth.
103	Rural and Industries Bank Act Amendment Act. Amends the <i>Rural and Industries Bank Act, 1944–1968</i> .
53	Soil Fertility Research Act Amendment Act. Amends section 4 of the <i>Soil Fertility Research Act, 1954–1955</i> .
38	Solicitor-General Act. Provides for the appointment of a person to the office of Solicitor-General of the State of Western Australia.
113	Stamp Act Amendment Act. Amends the <i>Stamp Act, 1921–1968</i> .
11	State Housing Act Amendment Act. Amends the <i>State Housing Act, 1946–1968</i> .
102	State Housing Act Amendment Act (No. 2). Amends the <i>State Housing Act, 1946–1969</i> .
30	Stock Diseases (Regulations) Act Amendment Act. Amends the <i>Stock Diseases (Regulations) Act, 1968</i> .
33	Stock Jobbing (Application) Act. Terminates the application in the State of certain Imperial Acts.
34	Strata Titles Act Amendment Act. Amends the <i>Strata Titles Act, 1966</i> .
72	Suitsors' Fund Act Amendment Act. Amends the <i>Suitsors' Fund Act, 1964</i> .
49	Supply Act. Grants supply of \$155 million for the year 1969–70.
108	Taxation (Staff Arrangements) Act. Provides for the employment in the Public Service of the State of certain employees of the Commonwealth in connection with taxation and associated activities.
70	The Perpetual Executors Trustees and Agency Company (W.A.) Limited Act Amendment Act. Amends <i>The Perpetual Executors Trustees and Agency Company (W.A.) Limited Act, 1922–1966</i> .
12	The West Australian Trustee Executor and Agency Company Limited Act Amendment Act. Amends <i>The West Australian Trustee Executor and Agency Company Limited Act, 1893–1966</i> where necessary for the purpose of re-printing it.
71	The West Australian Trustee Executor and Agency Company Limited Act Amendment Act (No. 2). Amends <i>The West Australian Trustee Executor and Agency Company Limited Act, 1893–1969</i> .
69	Timber Industry Regulation Act Amendment Act. Amends the <i>Timber Industry Regulation Act, 1926–1968</i> .
31	Town Planning and Development Act Amendment Act. Amends the <i>Town Planning and Development Act, 1928–1967</i> .
20	Trade Descriptions and False Advertisements Act Amendment Act. Amends the <i>Trade Descriptions and False Advertisements Act, 1936–1956</i> .
37	Traffic Act Amendment Act. Amends the <i>Traffic Act, 1919–1968</i> .
48	Traffic Act Amendment Act (No. 2). Amends the <i>Traffic Act, 1919–1968</i> .
28	Transfer of Land Act Amendment Act. Amends the <i>Transfer of Land Act, 1893–1965</i> .
88	Transfer of Land Act Amendment Act (No. 3). Amends section 145 of the <i>Transfer of Land Act, 1893–1969</i> .
46	University of Western Australia Act Amendment Act. Amends the <i>University of Western Australia Act, 1911–1964</i> .
54	Water Boards Act Amendment Act. Amends section 10 of the <i>Water Boards Act, 1904–1964</i> .
64	Weights and Measures Act Amendment Act. Repeals section 14 of the <i>Weights and Measures Act Amendment Act, 1967</i> and amends the <i>Weights and Measures Act, 1915–1967</i> .
57	Western Australian Institute of Technology Act Amendment Act. Amends the <i>Western Australian Institute of Technology Act, 1966–1968</i> .
114	Wheat Delivery Quotas Act. Provides for the establishment of a quota scheme with respect to the delivery and marketing of wheat. Modifies the operation of the <i>Wheat Industry Stabilization Act, 1968</i> and the <i>Bulk Handling Act, 1967</i> .
106	Wheat Industry Stabilization Act Amendment Act. Amends the <i>Wheat Industry Stabilization Act, 1968</i> .
52	Wheat Marketing Act Continuance Act. Amends the <i>Wheat Marketing Act, 1947–1956</i> .
58	Wood Chipping Industry Agreement Act. Approves an agreement between the State, W.A. Chip & Pulp Co. Pty. Ltd. and Bunning Timber Holdings Ltd. relating to the establishment and subsequent operations of a wood chipping industry in the vicinity of Manjimup.



## GOVERNMENT ADMINISTRATION

The Public Service of Western Australia operates under the *Public Service Act, 1904-1967* and consists of a number of branches of the Service established as Departments in accordance with regulations made under the Act. The departments are Agriculture, Audit, Chief Secretary's, Child Welfare, Crown Law, Education, Electoral, Fisheries and Fauna, Forests, Industrial Development, Labour, Lands and Surveys, Local Government, Medical, Mines, Native Welfare, Police, Premier's, Public Health, Public Works, State Taxation, Town Planning, and The Treasury; Mental Health Services; the Metropolitan Water Supply, Sewerage, and Drainage Board; the Public Service Commissioner's Office; the State Government Insurance Office; The State Housing Commission; and the Workers' Compensation Board.

A number of other State Departments and Statutory Authorities, referred to as Instrumentalities, function under separate Acts although they very largely follow the conditions prescribed in the Public Service Act.

Establishment, abolition or re-organisation of departments are subject to the approval of the Governor.

**Departments**

A brief summary of the functions of each of the departments established at 31 December 1970 is given below.

**DEPARTMENT OF AGRICULTURE**

Minister: Minister for Agriculture

Permanent Head: Director of Agriculture

This Department is the branch of the State Government Service responsible for bringing scientific advice to farmers and pastoralists, for carrying out research and investigations into a wide range of technical problems, providing certain services, often at less than cost, and for administering certain Acts of Parliament dealing with agriculture.

The various divisions are:

Administrative; Animal; Biological Services; Dairy; Horticulture; North-West; Plant Research; Soils; and Wheat and Sheep.

**AUDIT DEPARTMENT**

Minister: The Premier

Permanent Head: Auditor General

The Audit Department provides the machinery to assist the Auditor General in performing his statutory obligations to Parliament.

Basically, the Auditor General's obligations are to report directly and indirectly to Parliament according to its specific instructions, as he is responsible only to Parliament. To enable the Auditor General to report to Parliament, the staff of the Audit Department assist by examining the financial transactions and affairs of Departments and Authorities and reports to the Auditor General.

**CHIEF SECRETARY'S DEPARTMENT**

Minister: Chief Secretary

Permanent Head: Secretary

The Chief Secretary's Department performs many diverse activities connected with the government of the State. Originally it performed almost all the functions of government, but over the years other departments have been created to undertake specific functions and the Chief Secretary's Department has been left with the remainder.

The various branches are:

Registrar General's Office; Prisons; and Astronomical Services.

**CHILD WELFARE DEPARTMENT**

Minister: Minister for Child Welfare

Permanent Head: Director of Child Welfare

The Child Welfare Department is responsible for the care of State wards and children placed under supervision or released on probation by Children's Courts. It supervises institutions caring for children, arranges legal adoptions and the licensing of children employed in street trading and in public entertainment. It also decides which institution or what form of treatment is appropriate to the needs of a child committed by a Children's Court to the care of the Department for treatment, discipline and training.

The Department has a Welfare Division and a Field Division.

**CROWN LAW DEPARTMENT**

Minister: Minister for Justice

Permanent Head: Under Secretary

The Crown Law Department conducts the legal business of the Crown and in this capacity acts for, and advises, all other Departments and State Government Instrumentalities whenever called upon.

Other functions of the Crown Law Department are carried out by the following bodies:

Supreme Court of Western Australia; The District Court of Western Australia; Companies Registration Office; Court Offices; Public Trust Office; Office of Titles; Probation and Parole Office; Registrar of Trade Associations and Registrar, Land Agents Supervisory Committee.

**EDUCATION DEPARTMENT**

Minister: Minister for Education

Permanent Head: Director-General of Education

The Education Department is responsible for the organisation and management of the State Government's education programme. It ensures that all children between the ages of six and fifteen years receive efficient and regular instruction in general educational subjects, and provides higher education for children over fifteen years of age.

In addition to providing the teachers for all State schools, the Education Department is responsible for the general administration, including the provision and maintenance of school buildings, furniture and equipment, the payment of teachers' salaries, housing of teachers, transport of children to schools in country areas, awarding scholarships and teaching bursaries, and other general administrative functions.

The divisions of the Department are:

Primary Education; Secondary Education; Technical Education; Teacher Education; Special Services; and Administrative.

**ELECTORAL DEPARTMENT**

Minister: Minister for Justice

Permanent Head: Chief Electoral Officer

In general, the functions of the Electoral Department are to prepare, compile and print Legislative Council and Legislative Assembly Rolls, and to conduct all State Parliamentary elections and other elections as required. It ballots for and compiles draft jury rolls and carries out all the requirements of the *Electoral Act, 1907-1970* and other legislation applicable to elections.

## DEPARTMENT OF FISHERIES AND FAUNA

Minister: Minister for Fisheries and Fauna

Permanent Head: Director of Fisheries and Fauna

The Department of Fisheries and Fauna is responsible for the administration of five State Acts, comprising the Fisheries Act, Fauna Conservation Act, Pearling Act, Oyster Fisheries Act and the Whaling Act.

In addition it administers, by delegation, three Federal Acts relating to Australian waters adjacent to Western Australia, and advises the State Government on the development, regulation, conservation and management of fisheries and wildlife resources.

## FORESTS DEPARTMENT

Minister: Minister for Forests

Permanent Head: Conservator of Forests

The Forests Department maintains a staff to systematically control the timber industry in such varying activities as clearing, grazing, and firewood cutting. It advises on tree planting, encourages natural regeneration, and manipulates cutting to implement the sustained yield objective. Intensive precautions are taken by the Department to minimise the danger of damage by fire due to the hot, dry summers experienced in most of the areas covered by State Forests.

## DEPARTMENT OF INDUSTRIAL DEVELOPMENT

Minister: Minister for Industrial Development

Permanent Head: Director of Industrial Development

The functions of this Department are to assist the expansion of existing industry, foster the establishment of new industries, encourage exports, organise exhibitions and publicise Western Australian trade and industry. The Department is continuously engaged in feasibility studies relating to import replacement. It also undertakes market research and conducts investigations into the commercial possibilities of using indigenous raw materials for industrial purposes.

In carrying out these functions the Department establishes and maintains a close liaison with industry and with government departments responsible for the provision of services, information and finance.

The Department, in certain circumstances, may recommend that financial assistance, by way of direct loan or guarantee of a loan, be granted under the *Industry (Advances) Act, 1947-1961* to industries which are unable to obtain sufficient capital from normal sources to commence or expand operations.

## DEPARTMENT OF LABOUR

Minister: Minister for Labour

Permanent Head: Secretary for Labour

The Department of Labour advises the Government on all matters affecting the employment of wages employees, including industrial safety, health and welfare, the control and regulation of the industrial aspects of various trades, industrial relations, including the prevention and settlement of industrial disputes, and training within industry. It administers a number of Statutes such as the Factories and Shops Act, Government Employees (P.A.B.) Act, Industrial Arbitration Act, Inspection of Scaffolding Act, Long Service Leave Act, and the Weights and Measures Act.

The various branches of the Department are:

Weights and Measures; Factories and Shops; Inspection of Scaffolding; The Western Australian Industrial Commission; and Apprenticeship Advisory Council.

## DEPARTMENT OF LANDS AND SURVEYS

Minister: Minister for Lands

Permanent Head: Under Secretary

The Department of Lands and Surveys is responsible for the leasing and alienation of Crown land, except where mining and forestry tenures are involved. In certain instances, advisory or partly executive boards have been created to assist in administration. Large-scale as well as detailed soil survey measures have been developed. Soil and pastoral mapping of Crown lands in Western Australia has always been carried out under the direction of the Surveyor General as a function of the Department. It is responsible for the provision of reserves of Crown land for recreational and other purposes and also for the control and maintenance of the Bush Fires Board and National Parks Board.

The various branches of the Department are:

Surveyor General's Division; Mapping Branch; Bush Fires Board; National Parks Board; and the State Immigration Department.

## LOCAL GOVERNMENT DEPARTMENT

Minister: Minister for Local Government

Permanent Head: Secretary for Local Government

The Local Government Department supervises the administration of some 140 municipalities which, at 31 December 1970, comprised 6 Cities, 10 Towns and 124 Shires. The principal legislation is the *Local Government Act, 1960-1970* and there are a number of minor Acts also administered by the Department.

The main functions are to advise municipalities on all matters under the various Acts, to audit the accounts of 126 municipal councils, to review legislation and initiate amendments, and to process various appeals under the Local Government Act.

## MEDICAL DEPARTMENT

Minister: Minister for Health

Permanent Head: Director of Administration

The Medical Department's responsibility is to provide an efficient public hospital service throughout the State. This includes direct administration of all departmental hospitals, and supervision of Board hospitals controlled by boards of management appointed under the provisions of the *Hospitals Act, 1927-1969*.

## DEPARTMENT OF MINES

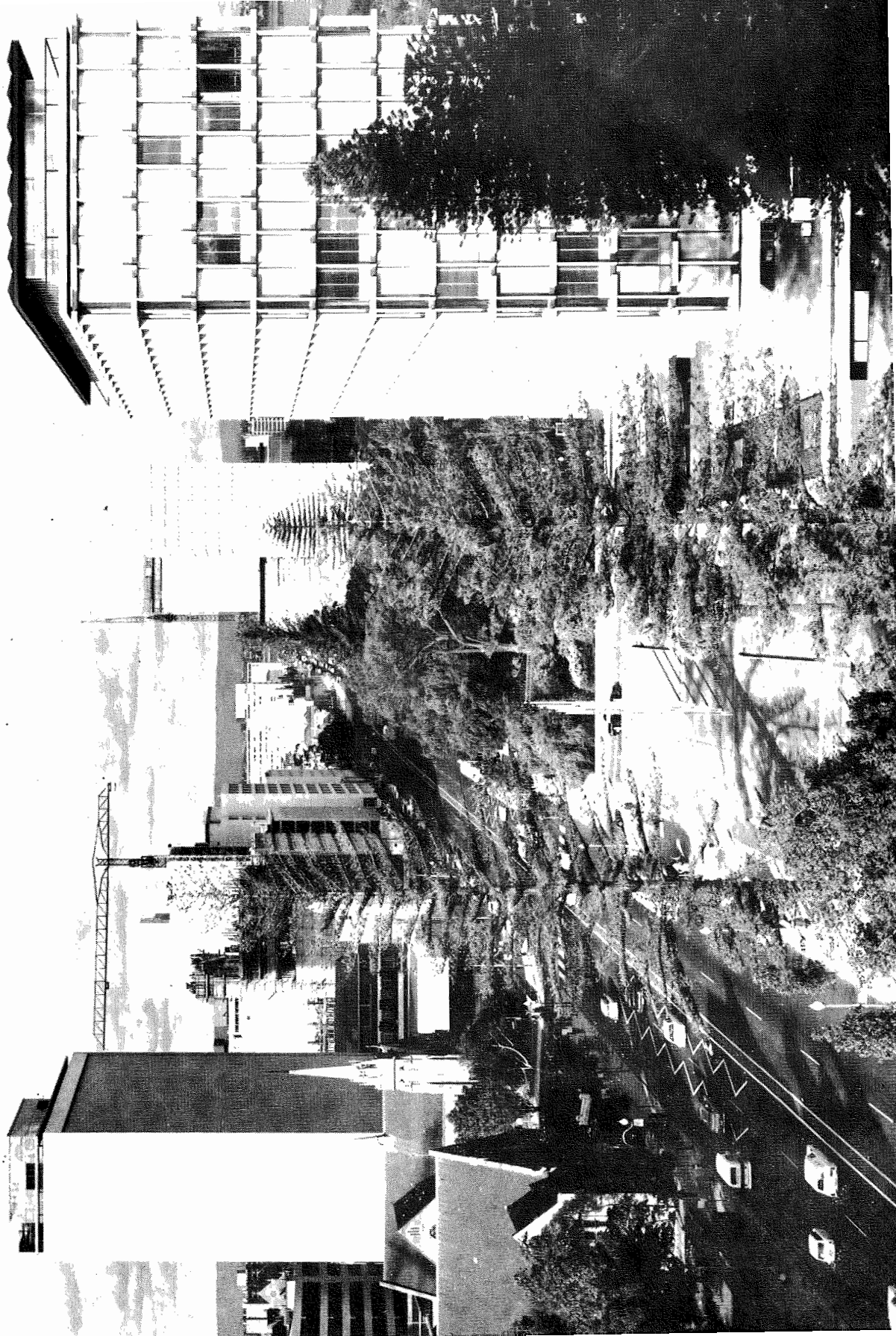
Minister: Minister for Mines

Permanent Head: Under Secretary

The Department of Mines administers one of the most important and perhaps more colourful of the State's industries. It is responsible for the administration of legislation relating to petroleum exploration and production, mining, quarrying, ground water resources, explosives, liquefied gases and inflammable liquids. It geologically surveys, maps and assesses the State's mineral resources, and undertakes chemical work for Government Departments and the general public.

The various branches are:

Outstations; Explosives; State Mining Engineers, Inspection of Mines and Machinery; Chief Coal Mining Engineer; State Batteries; Government Chemical Laboratories; Geological Survey; and Surveys and Mapping.





#### ST GEORGE'S TERRACE, PERTH

This view, looking east down St George's Terrace shows three prominent buildings connected with government administration in Western Australia. In the right foreground is Council House which contains the municipal offices of the Perth City Council. To its left may be seen the new Commonwealth Centre, while in the left foreground is the Superannuation Building which houses a number of State Government departments.

*Photograph by courtesy of Australian News and Information Bureau*

## DEPARTMENT OF NATIVE WELFARE

Minister: Minister for Native Welfare

Permanent Head: Commissioner of Native Welfare

The Department of Native Welfare is basically a social welfare agency on behalf of Aboriginal people. In discharging its responsibilities in this respect it must, of necessity, attend to a wide range of activities such as promoting social and economic advancement of Aborigines in Western Australia including assistance with housing, health services, employment and education.

## POLICE DEPARTMENT

Minister: Minister for Police and Traffic

Permanent Head: Commissioner of Police

The Police Department is responsible for the maintenance of law and order, the protection of life and property, and prevention and detection of crime throughout the State. It exercises its jurisdiction over such important Acts as the Police Act, Traffic Act, Criminal Code, Licensing Act, Illicit Sale of Liquor Act, Firearms and Guns Act and Cruelty to Animals Act.

The various branches are:

Criminal Investigation; Traffic; District Offices; Liquor Inspection and Plainclothes; Firearms; Motor Transport; and Lecturing.

## PREMIER'S DEPARTMENT

Minister: The Premier

Permanent Head: Under Secretary

The Department is responsible for the co-ordination of State Government activities and for the direction and control of Civil Defence and Emergency Services. It embraces within its organisation the office of the Governor and the Executive Council, and acts as a channel of communication with other governments and the office of the Agent General in London. The functions performed by the Department extend over the whole area of the State and are administrative, regulatory, planning, developmental, and educational in character.

The various branches are:

London Agency; North-West; and Tourist Development Authority.

## PUBLIC HEALTH DEPARTMENT

Minister: Minister for Health

Permanent Head: Commissioner of Public Health

The Public Health Department co-operates with Commonwealth and local authorities in maintaining health services and in the prevention and control of infectious diseases. It is responsible for the enforcement of sanitation, building and pure foods standards; the control of nuisances and offensive trades; the regulation of the sale of pesticides; the manufacture of therapeutic substances; the registration of private hospitals; and the licensing of maternity homes in Western Australia.

Among the principal functions of the Department is the management of the National Health Services provided under the National Health Act (Commonwealth). It controls the Australian Quarantine Service for the quarantine of humans, animals and plants.

To maintain the general health of children in Western Australia there are Child Health Services and School Medical and Dental Services.

The Department has a Tuberculosis Branch and operates the Public Health Laboratories.

**PUBLIC WORKS DEPARTMENT**

Minister: Minister for Works

Permanent Head: Under Secretary

The Department's function could well be described as that of an architect, engineer, estate agent and builder, for it is responsible for the construction, maintenance, supply and furnishing of premises for Departments, Agencies and Government Institutions including schools. It also constructs, operates and maintains harbours, water supplies, sewerage schemes, land drainage and irrigation works.

The various divisions are:

Engineering; Architectural; and the Harbour and Light Department.

**STATE TAXATION DEPARTMENT**

Minister: The Treasurer

Permanent Head: Commissioner of State Taxation

The State Taxation Department is responsible for the assessing and collection of Land, and Metropolitan Region Improvement Taxes; Vermin, and Noxious Weeds Rates; Stamp Duties; State Death Duties; and the collection of Betting Taxes.

In addition to the normal valuation functions associated with taxation, the Valuations Division provides valuation services for other State Departments and local authorities.

The Divisions of the Department are:

Administrative; Valuations; Land Tax; Stamp Duties; and Probate Duties.

**TOWN PLANNING DEPARTMENT**

Minister: Minister for Town Planning

Permanent Head: Town Planning Commissioner

The Town Planning Department provides the technical and administrative services for the Town Planning Board and The Metropolitan Region Planning Authority and is represented on committees and other activities related to the co-ordination of State development.

The Town Planning Board is responsible for the overall control of subdivisional and town planning activities in the State and advises the Minister on all matters in this field. The Metropolitan Region Planning Authority is a statutory body responsible for the formulation, implementation and revision of the master plan for the development of metropolitan Perth which is known as the Metropolitan Region Scheme.

**THE TREASURY**

Minister: The Treasurer

Permanent Head: The Under Treasurer

The Treasury co-ordinates the accounts of all Governmental activities and provides the Government with financial information and advice. Its functions may be described as financial and accounting.

The former function deals with problems of overall Government finance. Within its orbit falls budgetary control, financial arrangements, Loan Council submissions and Treasury representation on various Boards. The Accounts Section keeps the Control Accounts of all Government Departments and Instrumentalities and draws cheques for payments. In addition, it keeps detailed accounts for several Departments. The Treasury has as sub-departments the Superannuation Board, Government Stores Department and Government Printing Office.



## MENTAL HEALTH SERVICES

Minister: Minister for Health

Permanent Head: Director of Mental Health Services

The Mental Health Services administer and control hospitals for the treatment of mental illness, reception homes, out-patient and child guidance clinics, day hospitals, training centres, geriatric centres, hostels and sheltered workshop units.

The principal institution of the Mental Health Services is the Claremont Hospital.

## METROPOLITAN WATER SUPPLY, SEWERAGE, AND DRAINAGE BOARD

Minister: Minister of Water Supply, Sewerage and Drainage

Permanent Head: General Manager

The principal water supply and sewerage systems of Western Australia are under the control of two State authorities—the Metropolitan Water Supply, Sewerage, and Drainage Board and the Public Works Department.

The function of the Board is the construction, operation, maintenance and control of water, sewerage and main drainage facilities in the Metropolitan Water, Sewerage, and Drainage Area.

## PUBLIC SERVICE COMMISSIONER'S OFFICE

Minister: The Premier

Permanent Head: Public Service Commissioner

The basic responsibilities of the Public Service Commissioner are determined either by Statute or by Government policy.

Statutory functions include ensuring that the Service operates as efficiently and economically as possible; developing and controlling overall policy relating to personnel management and administration in the Service; and providing the Premier and the Government with advice, as required.

With regard to Government policy, the Commissioner acts as a co-ordinating agency between the Government and Instrumentalities, Authorities, Boards and Trusts concerning uniformity of salaries and conditions of service generally.

## STATE GOVERNMENT INSURANCE OFFICE

Minister: Minister for Housing and Labour

Permanent Head: General Manager

The State Government Insurance Office, which is governed by the *State Government Insurance Office Act, 1938-1965*, carries on insurance business with the public relating to compensation under the Workers' Compensation Act, compensation and damage at Common Law, all classes of insurable risks in connection with ownership and use of motor vehicles, all classes of insurable risks in respect of which local authorities and friendly societies ordinarily require and obtain insurance, and personal accident insurance in respect of any person who is a student or trainee of any educational or training institution.

## THE STATE HOUSING COMMISSION

Minister: Minister for Housing

Permanent Head: General Manager

The State Housing Commission's functions may be divided into the following main areas of activity:

- (i) The State-wide provision of low-cost housing for purchase or rental by families of low and moderate income.

- (ii) The administration of the Building Societies Act, the Housing Loan Guarantee Act, and the War Service Homes Act (Commonwealth) as it applies to Western Australia, and the construction and maintenance of dwellings on behalf of the Government Employees' Housing Authority.

The various branches are:

Architecture; Lands and Securities; Estate Planning and Design; Sales and Tenancy; and Administration—War Service Homes.

#### WORKERS' COMPENSATION BOARD

Minister: Minister for Housing and Labour

Permanent Head: Registrar and Secretary

The Board is responsible for administering the *Workers' Compensation Act, 1912-1970* generally, the compulsory insurance provisions of the Act and the determination of maximum premium rates, and also the compensation funds of minors, widows and persons under legal disabilities. It adjudicates on all disputed claims and awards compensation in proper cases. The Board is also charged with duties of accident prevention and rehabilitation of injured workers.

### HISTORY OF STATE GOVERNMENT DEPARTMENTS

Commencing in this issue, a short but reasonably comprehensive history of State Government Departments will be presented in the Year Book. The following article, the first in the series, deals with the historical development of the Public Works Department, the largest of the State Departments with an origin dating back to the first days of settlement in Western Australia.

#### PUBLIC WORKS DEPARTMENT

The Public Works Department has developed from a small unit established in 1829 to a large government department with activities throughout the whole of the State of Western Australia. Originally the Department was responsible for the construction, maintenance and operation of all government works. Thus, in 1881 it was responsible for the construction of railways, roads, bridges, water supplies and public buildings such as police stations, schools, post offices, light houses and quarantine stations. It is in this regard unique in view of the enormous territory covered and the diversity of activities included within its jurisdiction.

The first guiding hand was that of Mr Reveley whose name appears in the Civil Establishment List for 1828-30 as Acting Civil Engineer, and his appointment dates from 16 May 1829.

One of the earliest works reported to have been performed was the construction of a jetty at Perth by Government workmen.

Another early construction consisted of Barracks, which are stated on a plan to have been located on a site bounded by St George's Terrace, Barrack and Howick Streets (now Hay Street), apparently on the site of existing Government offices.

Some of the other works undertaken in the early years of the settlement included a canal through the river flats above Perth in 1831: gaol buildings at Fremantle in the same year; and in 1833 a mill at South Perth for the rendering of corn. Bush roads were constructed from Perth to Fremantle, Perth to Kelmscott, Perth to Guildford, Guildford to Kelmscott, and Guildford to York in the period 1830 to 1840.

Between 1840 and 1843, the first Perth Causeway and the Mill Street jetty were built, and in 1865 the Perth Colonial School was erected by convict labour under contractors Trigg, Smith and Lennon. The Perth Town Hall was completed and opened in 1870 at a total cost of \$9,014, exclusive of the value of convict labour engaged on the job.

In 1875 the office of Surveyor General was created. The position appears to have been incorporated with that of Director of Works for the Department from about 1875 onwards came under the jurisdiction of the Surveyor General and was housed with the Lands Department in the central Government buildings. In 1876, however, the Department was placed provisionally with the Commissioner of Crown Lands.

In 1877 Mr J. H. Thomas was appointed as Director of Public Works and in 1878 he was also given the title of Commissioner of Railways. Railways and public works generally were joined in one department.

About the year 1879 the Director of Public Works became a member of the Executive Council of the State. That year therefore might readily be taken as the date when the Department attained its independent existence, in that it was then first represented in Executive Council by a separate member or Minister.

In 1881 plans and specifications were in course of preparation for additions to the central Government buildings, the additions being now known as the old General Post Office.

Building work was in hand on a new causeway during 1882 and mention is made in the records of the difficulties experienced in doing the work without interfering with the traffic on this, the busiest thoroughfare of the Colony.

A commencement was made in 1886 with the extension of the Fremantle water supply, the source of supply being within the convict prison.

In 1890 a further change occurred in the organisation of the Department when the Department of Works and Railways was separated into two departments, the former being termed Department of Works and Buildings. The following year, however, the two departments were again amalgamated, only to be again separated at a later date.

It was in 1891 that C. Y. O'Connor was appointed Engineer-in-Chief. He has left his mark and influence in the State's development in many fine public works, the most important of which are the Goldfields Water Supply Scheme and the Fremantle Harbour (commenced in 1892).

Even in 1893 the Department was not a large one, records indicating that the staff amounted to seventeen. By 1894, however, the number of officers had increased to a total of forty.

The first recorded Under Secretary for Public Works was Mr M. E. Jull, whose appointment dated from 1 July 1895.

In 1896 the first departure from the overall constructional responsibilities of the Department occurred when the construction of additions and improvements to existing railway lines was taken over by the Railway Department. The construction of new lines in any part of Western Australia, however, continued to be a function of the Public Works Department until 1931.

In the year 1902 the Public Works Act became law. This not only gave the necessary authority for public works to be undertaken and statutory establishment of the Department, but also gave the necessary power for compulsory acquisition of land and property for public works purposes, and supplied the basis on which compensation was to be assessed.

It was between 1900 and 1903 that the Public Works Department was transferred from its quarters in the central Government buildings to the Barracks buildings at the western end of St George's Terrace. This building, built by contractors Halliday and Brittain for \$14,000 in 1863-66, was erected as a barracks for the Enrolled Pensioner Force established for the protection of the Colony when the regular British forces were withdrawn in 1862.

From the beginning of this century the Department has expanded greatly, commensurate with the rapid development of the State.

It was at the beginning of this century that both the Goldfields Water Supply, including Mundaring Weir, and the Fremantle Harbour were constructed.

The construction and operation of all water supplies and sewerage works remained with the Department until 1903 when the operation of the Goldfields Water Supply Scheme came under the control of the Mines Department. This scheme operated as a separate undertaking until 1912 when it was transferred to the Water Supply, Sewerage and Drainage Department. In 1918 arrangements were completed whereby the construction and operation of all water supplies, sewerage, irrigation and drainage works outside the metropolitan area, came under the control of the Public Works, Water Supply, Sewerage and Drainage Department.

Today, the position is the same.

From 1904 onwards there was a very great increase in departmental activity. Many wells and bores were established throughout the north-eastern areas, large programmes of railway construction were undertaken by the Department, water supply schemes were put into execution, as well as developments in the field of harbours and river improvements. The Local Government Branch of the Department was also substantially developed.

About this time the Department was divided into various branches including Harbours and Rivers, Roads and Bridges, Railway Construction, Architectural, Accounts, Administrative, Water Supply, and Local Government.

A very large phase of the Department's activities has been along the lines of country town and farm water supplies, irrigation and drainage, and a very large sub-department exists on these very important lines of activity in the development of the State. Country towns sewerage has been added to the Department's activities and all harbour developments including North-West jetties are also performed by the Department.

In 1915 the control of State trading concerns such as the State Engineering Works, State Saw Mills, State Brick Works and State Quarries came within the Department's organisation. Now, however, only the State Engineering Works is under departmental control.

Important architectural works undertaken by the Department in recent years include Perth Modern School, technical schools and some buildings of the University and, in the period between 1880 and 1890, the Perth Museum and Art Gallery, Perth Public Library, Government Printing Office, Royal Mint, and many other country premises, including more than 800 schools. Parliament House was erected in 1900 and extensions to it were completed in March 1964.

The construction of all roads and bridges in this State continued to be the responsibility of the Department until 1926 when the Main Roads Board was formed as an independent entity, to be responsible for all main and developmental roads in the State. The Main Roads Board eventually became the Main Roads Department serving, however, under the same Ministerial Head.

The construction of new railway lines in any part of Western Australia continued to be a function of the Public Works Department until 1931, as stated previously, but before railway construction was handed over to the Railway Department there was a large number of railway systems and extensions carried out by the Public Works Department. On 1 January 1931, the Railway Construction Branch was transferred to the Railway Department and this separation of functions remains unchanged.

The Government water supplies outside the Metropolitan Area had, prior to 1962, been controlled by two branches of the Public Works Department—the Goldfields Water Supply Branch and the Hydraulic Engineer's Branch. Broadly the Goldfields Water Supply Branch administered Town and Agricultural Area Schemes which were supplied from the main Mundaring Weir-Kalgoorlie pipe line while the Hydraulic Engineer's Branch controlled all Town Water Supply schemes supplied from local sources. In addition the Hydraulic Engineer's Branch controlled the drainage and irrigation works of the Department, and in this capacity was responsible for the construction of many of the major dams in the State.

In 1962 a major reorganisation was made in which the Goldfields Water Supply and Hydraulic Engineer's Branches were abolished and four new branches established. These new branches were:

The Country Water Supply Branch,  
 The Irrigation and Drainage Branch,  
 The Planning, Design and Investigation Branch, and  
 The Construction, Major Hydraulic Undertakings Branch.

Until the upsurge of development which commenced in the late fifties, the engineering services required in the North-West were effectively controlled by the North-West Branch. By 1962, however, the major works being undertaken had introduced problems which required individual specialised services and as a result the North-West Branch was abolished and its duties transferred to the other appropriate branches of the Department.

The construction of harbour works and the maintenance of rivers is still a major function of the Public Works Department, and resumption of land for all Government purposes, including railways, is carried out. The construction and maintenance of all public buildings is a major activity of the Department.

With the current growth of the State it is likely that the Department will continue to expand.

At the present time the Department's activities extend throughout the whole length and breadth of the State, which poses severe problems from an administrative point of view.

The Department is accommodated in the government offices in Havelock Street, West Perth, which were officially opened on 4 March 1966.

## THE JUDICATURE

The two major factors in the development of the Australian legal system have been its British origin and the Commonwealth Constitution of 1900. This statute, an Act of the Imperial Parliament in London, limited the legislative power of State Parliaments in some respects and created a federal legislature. Since 1942, however, the Imperial Parliament can legislate for Australia only at Australia's request. The sources of Australian law of today are, therefore, found in Commonwealth and State legislation, in some Imperial legislation, and in the common law. Independence of the judiciary is an essential part of the Australian legal system.

The following list shows members of the Western Australian judiciary at 31 December 1970.

### *Supreme Court of Western Australia*

Chief Justice ....	....	The Honourable Sir Lawrence Jackson, K.C.M.G.
Senior Puisne Judge ....	....	The Honourable J. E. Virtue
Puisne Judges ....	....	The Honourable John Hale
		The Honourable F. T. P. Burt
		The Honourable J. M. Lavan
		The Honourable J. L. C. Wickham

### *The District Court of Western Australia*

Chairman of Judges ....	....	The Honourable S. H. Good
Judges ....	....	The Honourable D. C. Heenan
		The Honourable R. E. Jones
		The Honourable W. P. Pidgeon

Particulars of these and other Western Australian courts, and Commonwealth courts appear in Chapter V, Part 6 and Chapter X, Part 1.

## OVERSEAS REPRESENTATION IN WESTERN AUSTRALIA

At 31 December 1970 there were twenty-one countries represented in Western Australia by a consular agent, vice-consul, consul, consul-general, or deputy high commissioner, as follows.

- Austria—R. Holmes, Consul, 21 Howard Street, Perth 6000.
- Belgium—E. Blanckensee, Consul, 81 St George's Terrace, Perth 6000.
- Chile—F. G. Prochelle, Consul-General, 187 Riverton Drive, Shelley, 6155.
- China—Dr W. C. P. Chen, Consul, 'Casablanca', 196 Adelaide Terrace, Perth 6000.
- Denmark—J. C. Garnsworthy, Consul, 25 Henry Street, Fremantle 6160.
- El Salvador—L. Lopez-Duke, Consul, c/o Krantz and Sheldon, 'Casablanca', 196 Adelaide Terrace, Perth 6000.
- Finland—A. J. Shears, Consul, 'Casablanca', 196 Adelaide Terrace, Perth 6000.
- France—G. C. Lefevre, Consular Agent, 610 Murray Street, West Perth 6005.
- Germany, Federal Republic of—T. A. James, Consul, Sherwood House, 7 Sherwood Court, Perth 6000.
- Greece—C. P. Belegris, Consul, 132 Mounts Bay Road, Perth 6000.
- Guatemala—P. Smetana, Consul, Lot 60 Collingwood Street, Osborne Park 6017.
- Italy—Dr S. Terenzio, Consul, 18 Walker Avenue, West Perth 6005.
- Japan—K. Okazaki, Consul-General, 36 King's Park Road, West Perth 6005.
- Netherlands—M. van Oordt, Consul, Council House, 27-9 St George's Terrace, Perth 6000.
- Norway—E. A. M. Wright, Consul, 88 Thomas Street, West Perth 6005.
- Philippines—G. V. Mummery, Consul, 1095 Hay Street, Perth 6000.
- Portugal—C. G. Dudley, Vice-Consul, 66 St George's Terrace, Perth 6000.
- Sweden—H. Morgan, Consul, Market House, 849-51 Wellington Street, Perth 6000.
- United Kingdom—A. H. Birch, C.M.G., O.B.E., Deputy High Commissioner, A.N.Z. House, 84 St George's Terrace, Perth 6000.
- United States of America—J. A. Lacey, Consul, M.L.C. Building, 171 St George's Terrace, Perth 6000.
- Yugoslavia—P. Mihailovski, Consul, 32 King's Park Road, West Perth 6005.

In addition, the Grand Duchy of Luxembourg is represented in Western Australia by the Consul for Belgium.

The New Zealand Trade Commissioner in Western Australia is A. F. Jacobsen, A.F.C., St George's Court, 16 St George's Terrace, Perth 6000.

## STATE REPRESENTATION OVERSEAS AND IN OTHER STATES

Western Australia has been represented in the United Kingdom by an Agent General since 1892, the first appointment to the post being that of Sir Malcolm Fraser. An Office is maintained at Western Australia House, 115 Strand, London, W.C.2. Its functions include the representation of all government departments which have business in Britain and Europe, the purchase of government stores and equipment, the attraction of migrants, the encouragement of overseas private investment in Western Australia, and the provision of various types of assistance to visitors from Western Australia. In addition, the Office acts as agent for the State Treasury and as a receiving agency for The Rural and Industries Bank of Western Australia. Western Australia's European Public Relations Office also operates from Western Australia House. The Agent General for Western Australia, the Honourable G. P. Wild, M.B.E., is the personal representative in Britain of the State Premier.

Branches of the Tourist Bureau have been established in New South Wales at 128 King Street, Sydney, in Victoria at 2 Royal Arcade, Melbourne, in South Australia at 34 King William Street, Adelaide, and in the Northern Territory at Western Australia House, Cavenagh Street, Darwin.

### THE LOCAL GOVERNMENT SYSTEM

The function of local government in Western Australia is performed by a number of Councils (or, in special circumstances, by Commissioners appointed by the Governor) exercising powers conferred by the Parliament of the State. Each of the Councils consists of members elected by a local community and is responsible for the provision of many of the services necessary for the organisation and welfare of the community which it represents.

As early as 1838 an Act providing a measure of local government was passed and under its provisions the management and control of the town of Perth was vested in a body of trustees. The first elected Town Trust was constituted at Perth in 1842 under an Act of 1841 for the 'Improvement of Towns in Western Australia'. The Trust was dissolved in 1858 and replaced by a City Council, the town of Perth having been constituted a city when it became the seat of a Bishop in 1856.

Legislation was enacted in 1871 establishing Municipalities and Road Boards throughout the Colony. The existing Statute regulating the operations of the local authorities is the *Local Government Act, 1960-1970*, which is administered through a Department of Local Government by the Minister for Local Government. This Act consolidates the law relating to local government in Western Australia, and by its provisions the Municipal Corporations Act, the Road Districts Act and a number of other, less important, Acts were repealed. The legislation came into operation on 1 July 1961 and from that date new designations were applied to many local government districts, bodies and offices. Former Municipalities, other than cities, became known as 'Towns' and Road Districts were renamed 'Shires'. Municipalities which already had city status remained 'Cities'. The executive body in each local government district became a 'Council', City Councils and Town Councils being presided over by a Mayor, and Shire Councils by a President. The chief non-elective executive office of a City or a Town is that of 'Town Clerk' and of a Shire, that of 'Shire Clerk'.

At 31 December 1970 there were 6 Cities, 10 Towns and 124 Shires in Western Australia.

#### Local Government Districts

The only unincorporated area in Western Australia is King's Park, a public reserve of almost one thousand acres in Perth, all other land being incorporated within the district of a City, Town or Shire.

On presentation of a petition signed by a prescribed minimum number of ratepayers, the number varying with the subject matter, the Governor may by Order constitute any part of the State as a Town; constitute any unincorporated area as a Shire; constitute as a new Shire any part of an existing Shire; divide a Shire into two or more Shires; sever portion of a district and annex the portion to an adjoining district, or constitute the portion as a new Town or Shire; annex to a district any adjacent unincorporated areas; divide a district into wards; or abolish a district and dissolve the local governing authority.

The Act establishes a Local Government Boundaries Commission of three members, one being an officer of the Department of Local Government, who is Chairman of the Commission. The other members must be persons having experience in local government and nominated by associations of local government authorities. The Minister may refer to the Commission any question concerning the constitution or alteration of the constitution of local government districts. Every case where authorities are unable to agree on a matter of amalgamation or severance of territory must be referred to the Commission.

On the petition of the local authority concerned, the Governor may by Order declare to be a City any district which satisfies certain specified requirements. These requirements are that, during the three years immediately preceding the declaration, it shall have

maintained a population of not less than 30,000 persons if situated in the metropolitan area as declared for the purposes of the Act, or not less than 20,000 persons if situated outside that area; and have maintained a gross revenue of \$200,000 for each of the three years. In addition the district must be clearly distinguishable as a centre of population having a distinct civic centre with adequate halls and cultural facilities, and must have sufficient residential, commercial and industrial centres to justify its declaration as a separate city. The six Cities in Western Australia are all situated in the Perth Statistical Division and five of them had been granted city status before the requirements imposed by the present legislation became operative. These five Cities are Perth (proclaimed in 1856), Fremantle (1929), Subiaco (1952), Nedlands (1959), and South Perth (1959). The Town of Melville was declared a city on 3 May 1968, having satisfied the requirements for city status provided by the Local Government Act.

The boundaries of local government districts as they existed at 31 December 1968 are delineated on the map of the State at the back of the Year Book and the names and designations as at that date are listed on the pages immediately preceding the Index.

### **Constitution and Electoral Provisions**

The provisions of the Local Government Act relating to the composition of a City Council or a Town Council require that, in addition to the Mayor, there shall be, where the population is less than 1,000, six councillors; where the population is between 1,000 and 5,000, nine councillors; and if the population exceeds 5,000, twelve councillors if the district is not divided into wards but, where the district is divided into wards, three councillors for each ward. It is provided that a Shire Council shall consist of not less than five nor more than thirteen members, including the President.

Two methods of election to the office of Mayor or of President are prescribed. In the case of a City or Town, election is usually by a poll of the electors enrolled for the district. The President of a Shire is usually elected by the councillors from among their own number. It is provided, however, that a City or Town may adopt the system of election of the Mayor by the councillors, and that a Shire may conduct a poll of its electors for election to the office of President. The question of the adoption of the alternative system must, in all cases, be determined by submission to a poll of the electors, after delivery to the Mayor or the President of a resolution of a majority of the councillors or a petition signed by one-tenth of the electors, or by fifty electors, whichever is the greater. If not less than 15 per cent of eligible electors vote at the poll and a majority of the valid votes cast are in favour of the proposed alteration, the Governor may order its adoption.

The Act constitutes the office of Deputy Mayor, in the case of a City or a Town, and of Deputy President in the case of a Shire, and requires that the Council shall elect one of the councillors to the office.

Provision is made for local government elections to be held on the fourth Saturday in May of each year but in specified circumstances the Governor may, by proclamation, appoint a Saturday in May, earlier than the fourth Saturday, to be the election date. Membership of a Council is elective in all cases, the qualified electors being adult natural-born or naturalised British subjects who own or occupy rateable land in the district. The preferential system of voting is used and representation is generally on the basis of wards into which the district may be divided. Plural voting applies, an elector being entitled, in accordance with the rateable value of the property owned or occupied by him, to a number of votes which may not, however, exceed four in elections for Mayor or President, or two in elections for councillor. The Act contains provisions enabling nominees of corporations owning land in a district to vote at local government elections and to be elected to membership of the Council. Subject to disqualification on certain specified grounds, all adult persons who are natural-born or naturalised British subjects owning or occupying rateable land within the district are eligible for election to the Council of the district whether as Mayor, President or councillor.

The term of office of a Mayor or a President is two years if elected by the electors of the district, or one year if elected by the Council. Councillors are elected for a term of three years, some of their number, varying with the total membership of the Council,



retiring each year. On the expiration of their term of office, all members, including the Mayor and the President, are eligible for re-election if not subject to any of the disqualifications contained in the Act.

It is provided that, if in a particular district there should at any time be no Council or insufficient councillors to form a quorum, a Commissioner may be appointed to exercise all the powers of the local authority.

### **Functions of Local Authorities**

The functions and powers of local authorities are extremely diverse in character. They are prescribed in detail in the Local Government Act and some of the more important of them are referred to in later Chapters of the Year Book. For example, reference to local government activity in the fields of road construction and maintenance will be found in Chapter VI Part 1 and Chapter IX Part 3, the provision of parks, gardens and recreation grounds in Chapter V Part 2, libraries in Chapter V Part 2, public transport facilities in Chapter IX Part 3, water supplies in Chapter VII Part 2, town planning and building control in Chapter V Part 4, and the licensing of vehicles and road traffic control in Chapter IX Part 3. Among the many other powers of local authorities are those relating to hospitals and nursing services, kindergartens, hostels for school children, community centres, dental clinics, infant and maternal health centres, day nurseries, jetties, swimming baths, swimming pools, sanitation and disposal of refuse, fire prevention, eradication of noxious weeds and vermin, electricity generation, aerodromes, abattoirs, quarries, pounds and cemeteries. Under the provisions of the Health Act local authorities are responsible for certain aspects of health administration.

The operations of any local government authority may be subject to investigation by a person appointed by the Governor or the Minister and having, for the purposes of the inquiry, the powers of a Royal Commission.

### **Financial Provisions**

Financial powers of local authorities, although derived mainly from the Local Government Act, are also provided by other statutes, including the Health Act, the Water Boards Act, the Vermin Act, the Fire Brigades Act, the Cemeteries Act, the Library Board of Western Australia Act, the Argentine Ant Act and the Noxious Weeds Act. Revenue from vehicle licence fees payable under the provisions of the Traffic Act is another important item in local government finance.

Before the commencement of the Local Government Act on 1 July 1961, a number of rates, in addition to those authorised by local government legislation, were imposed as separate levies. These included health, sanitary and sewerage rates, water rates and vermin rates, as well as rates relating to fire brigades, cemeteries, libraries and the control of Argentine ants and noxious weeds. Under the provisions of the Local Government Act, the local authorities may include these separate levies in the general rate provided for in the Act.

The general rate for any year is determined, subject to certain statutory limits, by dividing the sum required to make up the difference between anticipated expenditure and estimated revenue from sources other than rates for that year by the total value of rateable property in the district. In assessing this value, every local authority must adopt valuations made by the State Taxation Department, by the water supply authority for the district, or by a qualified valuer (or valuers) appointed by the Council. The Act provides for the constitution of Valuation Appeal Courts, to which appeals may be made on matters concerning valuations of property and liability for rates as assessed by the Council.

Valuations may be on the basis of either 'unimproved value' or 'annual value'. The unimproved value generally represents the price which the rated land might be expected to realise if sold on the open market and, as the term implies, excludes any improvements. The annual value is an estimate of the annual rental value of the property including improvements, but with a prescribed deduction to cover rates, repairs, insurance and other related expenditure. Generally, City Councils and Town Councils are required to assess

the general rate on the basis of annual value, and Shire Councils on unimproved value. It is provided, however, that any Council may, under certain specified conditions, adopt the alternative basis. Although in general a Council is required to levy a rate which is uniform throughout its district, it may differentiate in rating by charging a higher rate in a specified area where expenditure, including loan interest and repayments, is incurred in providing special services for the benefit of that area.

Local authorities are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. Borrowing by means of a special bank overdraft is permissible, with the consent of the Minister, for the installation of sewerage connections or septic tanks and, with the approval of the Governor, for other works or undertakings. Money may also be borrowed by the sale of debentures, repayment being either by the system of reducible principal or by means of a sinking fund. Payments to debenture holders are made at prescribed intervals. Under the system of reducible principal, the local authority undertakes to pay both principal and interest by fixed instalments. Where redemption is by means of a sinking fund, the local authority is required to establish and maintain the necessary fund at the State Treasury. Interest on the loan is normally paid half-yearly and the full amount of the loan is repaid at maturity.

The extent of loan raisings for works and undertakings is controlled by a provision which, except with the specific approval of the Governor, imposes a limit on the borrowings of an authority. This limit is determined by deducting the net total debt on existing loans from a sum equal to ten times the amount obtained by subtracting from the average of the ordinary revenue of the authority during the preceding two years the average, for the same period, of its annual expenditure on the servicing of loans. The legislation allows that balances standing to the credit of sinking funds for loan repayment, as well as amounts actually repaid, may be deemed to be repayments for the purposes of calculating net total debt. In the case of borrowings to liquidate existing loans, it is provided that the money raised shall not exceed the outstanding balance of the loan.

Before a loan may be raised by the issue of debentures, approval of the borrowing must be obtained from the State Treasury and the local authority must then publish in a newspaper and in the *Government Gazette* a notification of its intention to borrow money, including a statement of the amount of the proposed loan, its purpose and other relevant matters. Except in the case of a loan to liquidate an existing loan debt, the ratepayers of the district may demand that the proposition be submitted to a poll. If less than 15 per cent of the ratepayers vote at the poll, the raising of the loan is approved. Where not less than 15 per cent of ratepayers vote and the majority are against the loan, or the number of votes against the loan is equal to the number of those in favour, the raising of the loan is forbidden.

Certain of the works and undertakings for which loan moneys may be used are specified in the Local Government Act. They include the construction of streets, roads and bridges, sewers, drains and water works; the erection or purchase of electric lighting plant, gas works and stone quarries; the provision of hostels for school children, libraries and other recreational facilities; the construction of civic and other buildings; and the purchase of land, materials and equipment. Where a particular work or undertaking is not specified in the Act the Governor may approve of it as a project for which money may be borrowed.

The financial transactions of local government authorities are subject to annual audit either by an auditor (or auditors) appointed by the Council or by a government inspector appointed by the Minister. To qualify for the office of auditor, a person must be a member of a specified institute or society of accountants and be registered as an auditor under the Companies Act. Appointment is for a term not exceeding two years, at the end of which time the holder of the office is eligible for reappointment.

The financial year for all Councils ends on 30 June.

Details of the revenue and expenditure of local authorities during the five-year period ending with the financial year 1968-69 are given in the section *Local Government Finance* in Chapter VI, Part 1.

## CHAPTER IV—POPULATION AND VITAL STATISTICS

### Part 1—Population

*NOTE. Population censuses prior to the Commonwealth Census of 1911 were undertaken by the Governments of the several Australian Colonies. In the Western Australian Census it was the practice to exclude full-blood Aborigines from the tabulations. At the 1911 Census and later enumerations full-blood Aborigines were excluded from the tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution. All tables and text on pages 125-39 therefore exclude particulars of full-blood Aborigines. See also references to Aborigines on page 126 and Aboriginal Population on pages 139-40.*

*All Census figures shown in this Part are final. Population estimates for dates and periods up to 30 June 1966 are final; later estimates are subject to revision after the 1971 Census.*

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The State of Western Australia, although comprising almost one-third of the total area of Australia, contains less than 8 per cent of the population.

At the end of 1829, the year of establishment of the Colony, there were 1,000 persons in Western Australia. Progress in the early years was slow, and in 1849 the population was still less than 5,000. Transportation of convicts, begun in the following year, resulted in some acceleration, but it was not until the discovery of gold in the Kimberley in 1885 and the rich finds at Coolgardie in 1892 and at Kalgoorlie in 1893 that any marked increase took place. This development was so rapid that, in the last decade of the century, the population was almost quadrupled, from 48,500 at the end of 1890 to 180,000 in 1900, representing an average annual rate of increase of 14·01 per cent. The rate of growth in those years has never been approached in the present century, as will be seen from the table on page 143, but the average annual rate of increase of Western Australia's population from the beginning of the century to the end of 1969, 2·47 per cent, has been higher than that of any other State and of the Commonwealth as a whole, 1·75 per cent.

### THE CENSUS

The first systematic census of the Colony of Western Australia was taken in 1848, since when there have been thirteen enumerations, at the dates shown in the table on page 126. The Census of 1881 was the first taken simultaneously in all the Australian Colonies and formed part of the first simultaneous census of the British Empire.

The first census of the Commonwealth of Australia conducted under the authority of the *Census and Statistics Act* 1905 was taken in 1911. The Act provided that a census should be taken in that year 'and in every tenth year thereafter'. In 1930 this provision was amended by the addition of the words 'or at such other time as is prescribed'. The depressed economic conditions of 1931 caused the postponement of the third Australian census to 1933, and because of war conditions the fourth Australian census was not taken until 1947. Consideration was then given to holding future censuses in the series of years originally provided for by the Act. However, it was thought that the interval from 1947 to 1951 was too short, and it was therefore decided to take the fifth census in 1954, at the mid-point of the period from 1947 to 1961. The sixth census was held in 1961. Owing to the administrative demand for more frequent counts of the population the seventh census was taken in 1966. The next Australian census is planned to be held in June 1971.

### Scope of the Census

The Australian Census is conducted on a *de facto* basis, i.e. it records the population actually in Australia, persons being enumerated at the place where they spent the night of the census, and the population so recorded being credited to that place whether or not it is the usual place of residence.

The Census covers the population of the Commonwealth and the dwellings in which it lives. The only persons excluded from the census tabulations are full-blood Australian Aborigines (see the following section *Aborigines*) and diplomatic representatives of overseas countries and their families and staffs having diplomatic immunity in accordance with international practice.

The term 'dwelling', as defined in the Census and Statistics Act, means 'a building, erection, or tenement, whether permanent or temporary, which is wholly or partly used for the purpose of human habitation and includes any ship or other vessel in any port of the Commonwealth or in any inland waters thereof, or any ship or vessel on a passage between any two Commonwealth ports'.

Tables dealing with dwellings recorded at the census will be found in Chapter V, Part 4.

**Aborigines.** Before an amendment to the Australian Constitution in 1967, it was provided by section 127 that 'in reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted'. This provision was deleted following a referendum held on 27 May 1967 which resulted in a large majority of votes in favour of its repeal. The enabling Act, the *Constitution Alteration (Aboriginals)* 1967, came into operation on 10 August 1967.

With regard to the original provision, Commonwealth legal authorities were of the opinion that persons of the half-blood were not 'aboriginal natives' within the meaning of the Constitution, and *a fortiori* that persons of less than half Aboriginal blood were not Aboriginal natives. Accordingly, only persons having Aboriginal blood to a degree greater than one-half have been excluded from the census tabulations. Dwellings occupied solely by full-blood Aborigines so defined have similarly been excluded.

Tables relating to the Aboriginal population appear on pages 140-1.

### Recorded Population

The population recorded in Western Australia at each census from 1848, its relation to the Australian population, and the masculinity are shown in the following table.

POPULATION AT EACH CENSUS DATE—1848-1966  
WESTERN AUSTRALIA AND AUSTRALIA

Date of Census	Western Australia			Australia	Western Australia	
	Males	Females	Persons	Persons (a)	Proportion of Australia (per cent)	Masculinity (b)
1848—10 October	2,818	1,804	4,622	326,445	1.42	156.21
1854—30 September	7,779	3,964	11,743	671,436	1.75	196.24
1859—31 December	9,522	5,315	14,837	1,097,305	1.35	179.15
1870—31 March ....	15,375	9,410	24,785	1,606,057	1.54	163.39
1881—3 April ....	17,062	12,646	29,708	2,250,194	1.32	134.92
1891—5 April ....	29,807	19,975	49,782	3,177,823	1.57	149.22
1901—31 March ....	112,875	71,249	184,124	3,773,801	4.88	158.42
1911—3 April ....	161,565	120,549	282,114	4,455,005	6.33	134.02
1921—4 April ....	177,278	155,454	332,732	5,435,734	6.12	114.04
1933—30 June ....	233,937	204,915	438,852	6,629,839	6.62	114.16
1947—30 June ....	258,076	244,404	502,480	7,579,358	6.63	105.59
1954—30 June ....	330,358	309,413	639,771	8,986,530	7.12	106.77
1961—30 June ....	375,452	361,177	736,629	10,508,186	7.01	103.95
1966—30 June ....	426,691	409,982	836,673	11,550,462	7.24	104.08

(a) Figures for dates prior to 3 April 1881 are estimates.  
each 100 females.

(b) Number of males to

### Characteristics of the Population

**Masculinity.** The sharp rise in masculinity between the Census of 1848 and the three succeeding enumerations, as shown in the preceding table, was doubtless a result of the transportation of convicts which began in 1850 and continued until 1868. During this period a total of 9,668 convicts, all of whom were males, were brought to the Colony. The high levels of masculinity disclosed by the Censuses of 1891 and 1901 may be attributed to the influx of a predominantly male population following the gold discoveries of 1885 and later years.

The masculinity of Western Australia's population has continued to be high. At 30 June 1966, it stood at 104·08 and was higher than in any other State and significantly higher than the Commonwealth figure of 101·43.

**Age.** The following table shows the numbers and proportions of the population of Western Australia in selected age groups at each census from 1933. The age groups have been chosen as representing, in a general sense, such sectors as the pre-school population, children of school age, minors, women of child-bearing age, the economically active population, and those beyond normal working age.

POPULATION IN SELECTED AGE GROUPS—CENSUSES, 1933 TO 1966

Age last birthday (years)	Number in each age group (a)					Per cent of total				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966

#### MALES

Under 6 ....	24,743	31,749	45,350	50,559	52,840	10·58	12·30	13·73	13·47	12·38
6-12 ....	29,116	29,717	44,075	56,195	63,328	12·45	11·51	13·34	14·97	14·84
6-15 ....	40,205	41,261	59,028	78,270	89,044	17·19	15·99	17·87	20·85	20·87
Under 18 ....	73,091	81,352	113,847	141,371	157,932	31·24	31·52	34·46	37·65	37·01
Under 21 ....	85,924	92,636	126,605	157,345	180,202	36·73	35·89	38·32	41·91	42·23
15-44 ....	114,045	116,353	142,694	150,826	181,273	48·75	45·08	43·19	40·17	42·48
15-64 ....	158,713	168,675	208,670	228,248	265,023	67·84	65·36	63·16	60·79	62·11
65 and over ....	13,978	20,386	22,262	24,593	28,331	5·98	7·90	6·74	6·55	6·64
All ages ....	233,937	258,076	330,358	375,452	426,691	100·00	100·00	100·00	100·00	100·00

#### FEMALES

Under 6 ....	23,833	30,518	43,871	47,888	50,180	11·63	12·49	14·18	13·26	12·24
6-12 ....	28,049	28,911	41,897	54,243	60,036	13·69	11·83	13·54	15·02	14·64
6-15 ....	38,853	40,023	56,210	75,024	84,790	18·96	16·38	18·17	20·77	20·68
Under 18 ....	70,369	78,667	109,142	134,811	150,276	34·34	32·19	35·27	37·33	36·65
Under 21 ....	82,608	90,538	121,393	150,128	171,055	40·31	37·04	39·23	41·57	41·72
15-44 ....	98,083	110,993	131,254	143,056	168,419	47·87	45·41	42·42	39·61	41·08
15-64 ....	134,980	157,458	189,062	213,573	247,244	65·87	64·43	61·10	59·13	60·31
65 and over ....	10,833	20,235	25,027	30,504	35,895	5·29	8·28	8·09	8·45	8·76
All ages ....	204,915	244,404	309,413	361,177	409,982	100·00	100·00	100·00	100·00	100·00

#### PERSONS

Under 6 ....	48,576	62,267	89,221	98,447	103,020	11·07	12·39	13·95	13·36	12·31
6-12 ....	57,165	58,628	85,972	110,438	123,364	13·03	11·67	13·44	14·99	14·74
6-15 ....	79,058	81,284	115,238	153,294	173,834	18·01	16·18	18·01	20·81	20·78
Under 18 ....	143,460	160,019	222,989	276,182	308,208	32·69	31·85	34·85	37·49	36·84
Under 21 ....	168,532	183,174	247,998	307,473	351,257	38·40	36·45	38·76	41·74	41·98
15-44 ....	212,128	227,346	273,948	293,882	349,692	48·34	45·24	42·82	39·90	41·80
15-64 ....	293,693	326,133	397,732	441,821	512,267	66·92	64·90	62·17	59·98	61·23
65 and over ....	24,811	40,621	47,289	55,097	64,226	5·65	8·08	7·39	7·48	7·68
All ages ....	438,852	502,480	639,771	736,629	836,673	100·00	100·00	100·00	100·00	100·00

(a) Recorded ages adjusted by the distribution of ages 'not stated'.

## AGE DISTRIBUTION OF THE POPULATION—CENSUSES, 1933 TO 1966

Age last birthday (years)	Population in each age group (a)					Percentage distribution				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
0-4	40,297	52,452	74,978	81,916	84,810	9.18	10.44	11.72	11.12	10.14
5-9	40,793	44,592	67,079	80,754	89,219	9.30	8.87	10.48	10.96	10.66
10-14	39,258	38,682	52,693	77,041	86,151	8.95	7.70	8.24	10.46	10.30
15-19	40,152	39,939	45,251	57,738	79,294	9.15	7.95	7.07	7.84	9.48
20-24	40,169	38,434	43,602	47,877	59,508	9.15	7.65	6.82	6.50	7.11
25-29	40,010	36,126	49,479	44,321	54,047	9.12	7.19	7.73	6.02	6.46
30-34	35,948	38,585	48,520	49,647	49,418	8.19	7.68	7.58	6.74	5.91
35-39	29,014	38,178	42,690	50,634	54,190	6.61	7.60	6.67	6.87	6.48
40-44	26,835	36,084	44,406	43,665	53,235	6.11	7.18	6.94	5.93	6.36
45-49	24,014	32,471	40,636	45,275	45,049	5.47	6.46	6.35	6.15	5.38
50-54	21,960	25,064	35,647	40,376	44,850	5.00	4.99	5.57	5.48	5.36
55-59	18,940	22,606	25,234	34,833	39,482	4.32	4.50	3.94	4.73	4.72
60-64	16,651	18,646	22,267	27,455	33,194	3.79	3.71	3.48	3.73	3.97
65-69	12,010	15,809	17,502	20,240	24,675	2.74	3.15	2.74	2.75	2.95
70-74	7,281	11,934	13,340	15,742	17,222	1.66	2.38	2.09	2.14	2.06
75 and over	5,520	12,878	16,447	19,115	22,329	1.26	2.56	2.57	2.59	2.67
Total	438,852	502,480	639,771	736,629	836,673	100.00	100.00	100.00	100.00	100.00
Under 21	168,532	183,174	247,998	307,473	351,257	38.40	36.45	38.76	41.74	41.98
21-64	245,509	278,685	344,484	374,059	421,190	55.94	55.46	53.84	50.78	50.34
65 and over	24,811	40,621	47,289	55,097	64,226	5.65	8.08	7.39	7.48	7.68
Total	438,852	502,480	639,771	736,629	836,673	100.00	100.00	100.00	100.00	100.00

(a) Recorded ages adjusted by the distribution of ages 'not stated'.

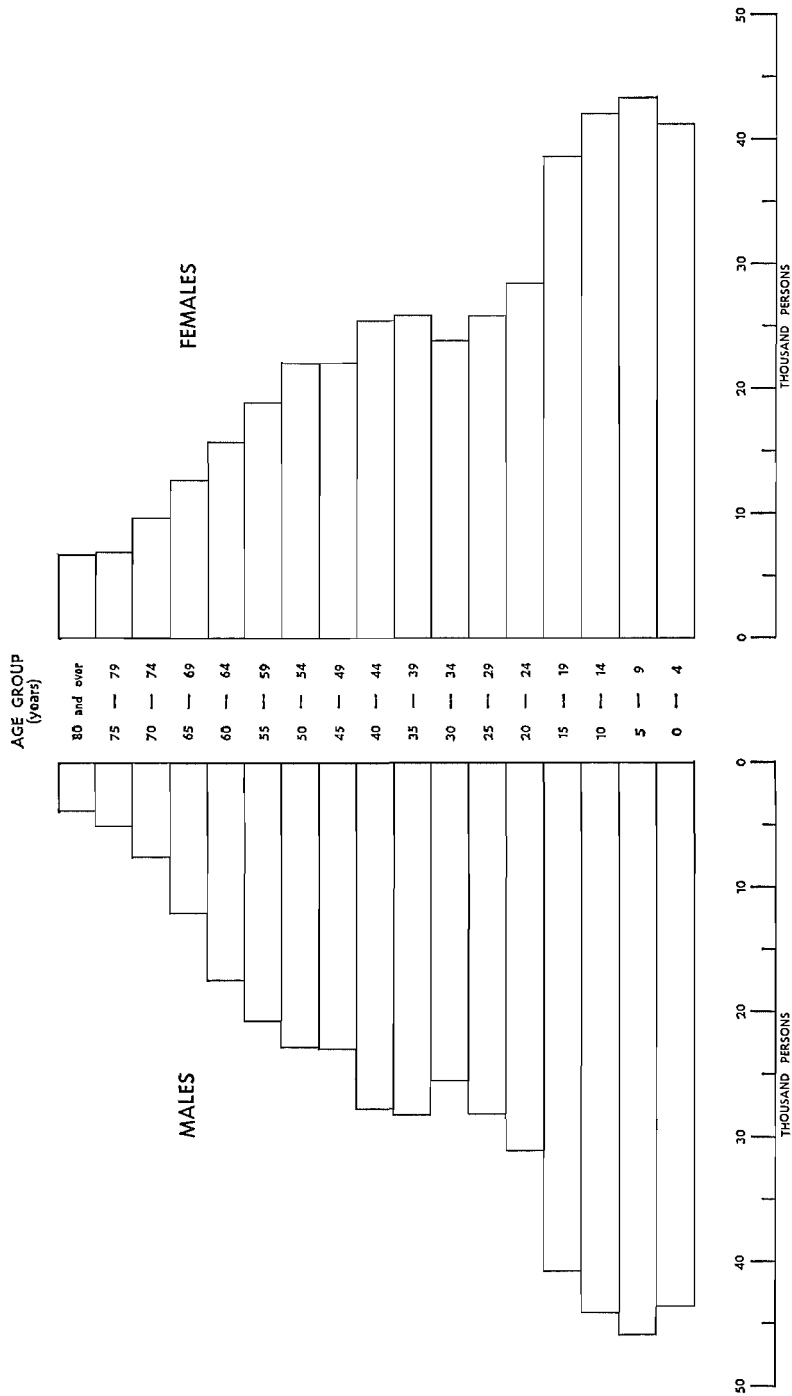
## AGE DISTRIBUTION OF THE POPULATION (a)—CENSUSES, 1961 AND 1966

Age last birthday (years)	Census, 30 June 1961		Census, 30 June 1966						
	Total persons	Per cent of total	Males	Females	Persons				
					Total	Per cent of total	Increase or decrease (b) since 1961		
							Numerical	Per cent	
0-4	81,916	11.12	43,524	41,286	84,810	10.14	2,894	3.53	
5-9	80,754	10.96	45,791	43,428	89,219	10.66	8,465	10.48	
10-14	77,041	10.46	44,022	42,129	86,151	10.30	9,110	11.82	
15-19	57,738	7.84	40,714	38,580	79,294	9.48	21,556	37.33	
20-24	47,877	6.50	31,032	28,476	59,508	7.11	11,631	24.29	
25-29	44,321	6.02	28,135	25,912	54,047	6.46	9,726	21.94	
30-34	49,647	6.74	25,488	23,930	49,418	5.91	—229	—0.46	
35-39	50,634	6.87	28,204	25,986	54,190	6.48	3,556	7.02	
40-44	43,665	5.93	27,700	25,535	53,235	6.36	9,570	21.92	
45-49	45,275	6.15	22,907	22,142	45,049	5.38	—226	—0.50	
50-54	40,376	5.48	22,747	22,103	44,850	5.36	4,474	11.08	
55-59	34,833	4.73	20,634	18,848	39,482	4.72	4,649	13.35	
60-64	27,455	3.73	17,462	15,732	33,194	3.97	5,739	20.90	
65-69	20,240	2.75	12,023	12,652	24,675	2.95	4,435	21.91	
70-74	15,742	2.14	7,513	9,709	17,222	2.06	1,480	9.40	
75-79	10,065	1.37	5,020	6,895	11,915	1.42	1,850	18.38	
80-84	5,811	0.79	2,481	3,986	6,467	0.77	656	11.29	
85-89	2,474	0.34	991	1,928	2,919	0.35	445	17.99	
90-94	651	0.09	252	604	856	0.10	205	31.49	
95-99	107	0.01	49	109	158	0.02	51	47.66	
100 and over	7	0.00	2	12	14	0.00	7	100.00	
Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58	

(a) Recorded ages adjusted by the distribution of ages 'not stated'. decrease.

(b) Minus sign (—) denotes

# Population, by Age Group: Census, 30 June 1966



**Birthplace; Nationality.** The category 'British' nationality, as used in the table below, includes all persons who, by virtue of section 7 of the *Nationality and Citizenship Act* 1948-1967, are deemed to be British subjects. It also includes persons who, under the provisions of the Act, are Australian citizens or citizens of any other country declared by regulation 5A of the Citizenship Regulations to be 'a country within the Commonwealth of Nations'. In addition, for the purpose of this table, Irish nationality is included with 'British'.

### BIRTHPLACE AND NATIONALITY OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30 June 1961		Census, 30 June 1966					
	Total persons	Per cent of total	Males	Females	Persons			
					Total	Per cent of total	Increase or decrease (a) since 1961	
							Numerical	Per cent
BIRTHPLACE								
Australia—								
Western Australia ....	501,770	68.12	276,471	277,156	553,627	66.17	51,857	10.33
Elsewhere in Australia ....	70,412	9.56	41,727	42,528	84,255	10.07	13,843	19.66
Total ....	572,182	77.68	318,198	319,684	637,882	76.24	65,700	11.48
New Zealand ....	1,913	0.26	1,431	1,237	2,668	0.32	755	39.47
Europe—								
United Kingdom and Re-								
public of Ireland ....	83,365	11.32	54,932	49,188	104,120	12.44	20,755	24.90
Austria ....	1,068	0.14	621	489	1,110	0.13	42	3.93
Germany ....	5,583	0.76	2,939	2,996	5,935	0.71	352	6.30
Greece ....	4,088	0.55	3,113	2,330	5,443	0.65	1,355	33.15
Italy ....	25,249	3.43	16,005	12,136	28,141	3.36	2,892	11.45
Latvia ....	1,247	0.17	633	501	1,134	0.14	—113	—9.06
Netherlands ....	11,163	1.52	5,755	4,614	10,369	1.24	—794	—7.11
Poland ....	4,711	0.64	2,775	1,952	4,727	0.56	16	0.34
Union of Soviet Socialist								
Republics (b) ....	1,672	0.23	836	792	1,628	0.19	—44	—2.63
Yugoslavia ....	5,876	0.80	4,641	2,860	7,501	0.90	1,625	27.65
Other ....	5,761	0.78	4,402	2,618	7,020	0.84	1,259	21.85
Total ....	149,783	20.33	96,652	80,476	177,128	21.17	27,345	18.26
Other birthplaces ....	12,751	1.73	10,410	8,585	18,995	2.27	6,244	48.97
GRAND TOTAL ....	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58
NATIONALITY								
British (c)—								
Born in Australia....	572,182	77.68	318,198	319,684	637,882	76.24	65,700	11.48
Born outside Australia ....	130,708	17.74	90,412	77,089	167,501	20.02	36,793	28.15
Total, British (c) ....	702,890	95.42	408,610	396,773	805,383	96.26	102,493	14.58
Foreign—								
Austrian ....	431	0.06	224	103	327	0.04	— 104	— 24.13
Dutch ....	7,367	1.00	2,148	1,837	3,985	0.48	— 3,382	— 45.91
German ....	1,897	0.26	956	570	1,526	0.18	— 371	— 19.56
Greek ....	1,882	0.26	1,499	1,066	2,565	0.31	683	36.29
Italian ....	13,905	1.89	6,723	6,099	12,822	1.53	— 1,083	— 7.79
Polish ....	1,783	0.24	560	400	960	0.11	— 823	— 46.16
Spanish ....	49	0.01	336	150	486	0.06	437	891.84
U.S. American ....	464	0.06	1,214	730	1,944	0.23	1,480	318.97
Yugoslav ....	2,177	0.30	1,957	1,080	3,037	0.36	860	39.50
Stateless ....	914	0.12	388	239	627	0.07	— 287	— 31.40
Other ....	2,870	0.39	2,076	935	3,011	0.36	141	4.91
Total, Foreign ....	33,739	4.58	18,081	13,209	31,290	3.74	— 2,449	— 7.26
GRAND TOTAL ....	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58

(a) Minus sign (—) denotes decrease.

(b) Includes Ukraine.

(c) See letterpress immediately preceding table.



**Religion; Marital Status.** The Census and Statistics Act provides that there shall be no penalty for failure to answer the question on religion, and a statement to this effect is contained in the census schedule. This doubtless accounts for the high proportion of non-reply, amounting to 10·43 per cent of the population in 1961 and 10·85 per cent in 1966.

# RELIGION AND MARITAL STATUS OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30 June 1961		Census, 30 June 1966					
	Total persons	Per cent of total	Males	Females	Persons			
					Total	Per cent of total	Increase or decrease (a) since 1961	
							Numerical	Per cent
RELIGION								
Christian—								
Baptist .... ..	8,961	1·22	5,118	5,602	10,720	1·28	1,759	19·63
Brethren .... ..	857	0·12	393	406	799	0·10	— 58	— 6·77
Catholic (b) .... ..	74,121	10·06	48,389	50,729	99,118	11·85	24,997	33·72
Catholic, Roman (b) ....	106,052	14·40	60,705	53,836	114,541	13·69	8,489	8·00
Church of England ....	289,863	39·35	159,309	156,844	316,153	37·79	26,290	9·07
Churches of Christ ....	10,261	1·39	5,369	6,127	11,496	1·37	1,235	12·04
Congregational .... ..	8,026	1·09	4,016	4,359	8,375	1·00	349	4·35
Lutheran .... ..	4,460	0·61	2,640	2,513	5,153	0·62	693	15·54
Methodist .... ..	76,465	10·38	39,423	41,417	80,840	9·66	4,375	5·72
Orthodox .... ..	9,057	1·23	6,560	5,275	11,835	1·41	2,778	30·67
Presbyterian .... ..	40,583	5·51	22,080	21,975	44,055	5·27	3,472	8·56
Salvation Army .... ..	4,545	0·62	2,388	2,534	4,922	0·59	377	8·29
Seventh-day Adventist ....	3,790	0·51	1,927	2,430	4,357	0·52	567	14·96
Protestant (undefined) ....	5,234	0·71	3,470	3,209	6,679	0·80	1,445	27·61
Other (including Christian undefined) .... ..	8,756	1·19	5,818	6,346	12,164	1·45	3,408	38·92
Total, Christian ....	651,031	88·38	367,605	363,602	731,207	87·39	80,176	12·32
Non-Christian—								
Hebrew .... ..	2,782	0·38	1,510	1,486	2,996	0·36	214	7·69
Other .... ..	836	0·11	768	298	1,066	0·13	230	27·51
Total, Non-Christian	3,618	0·49	2,278	1,784	4,062	0·49	444	12·27
Indefinite .... ..	2,028	0·28	1,558	1,216	2,774	0·33	746	36·79
No religion .... ..	3,156	0·43	5,060	2,759	7,819	0·93	4,663	147·75
Total replies .... ..	659,833	89·57	376,501	369,361	745,862	89·15	86,029	13·04
No reply .... ..	76,796	10·43	50,190	40,621	90,811	10·85	14,015	18·25
GRAND TOTAL ....	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58

(a) Minus sign (—) denotes decrease.

(b) As stated in individual census schedules.

(c) Legally or otherwise.

**Occupational Status; Industry; Occupation.** Classifications of the population according to occupational status, industry, and occupation, as recorded at the Census of 30 June 1966, will be found in Chapter X.

**Dwellings.** Particulars of dwellings, as revealed by the census, are given in Chapter V.

## INTERCENSAL INCREASES

The following table shows the population of Western Australia at each census from 1891 to 1966, and the intercensal gains or losses by natural increase and by migration. It also shows the average annual gains or losses in each intercensal period and in the whole period 1891-1966.

POPULATION—ANALYSIS OF INTERCENSAL INCREASES: 1891-1966

Period (a)	Population at beginning of period	Natural increase (b)		Net migration (c)		Total increase		Population at end of period
		Total	Annual average	Total	Annual average	Number	Annual average	
1891-1901 (10 years) ....	49,782	15,901	1,590	118,441	11,844	134,342	13,434	184,124
1901-1911 (10 years) ....	184,124	44,246	4,425	53,744	5,374	97,990	9,799	282,114
1911-1921 (10 years) ....	282,114	51,850	5,185	-1,232	-123	50,618	5,062	332,732
1921-1933 (12½ years) ....	332,732	60,127	4,908	45,993	3,755	106,120	8,663	438,852
1933-1947 (14 years) ....	438,852	69,439	4,960	-5,811	-415	63,628	4,545	502,480
1947-1954 (7 years) ....	502,480	65,576	9,368	71,715	10,245	137,291	19,613	639,771
1954-1961 (7 years) ....	639,771	79,432	11,348	17,426	2,489	96,858	13,837	736,629
1961-1966 (5 years) ....	736,629	53,122	10,624	46,922	9,384	100,044	20,009	836,673
1891-1966 (75½ years) ....	49,782	439,693	5,843	347,198	4,614	786,891	10,457	836,673

(a) For Census dates, see table on page 126. (b) Excess of births registered over deaths registered. (c) Interstate and overseas. Minus sign (—) indicates loss by migration.

The following table shows the increases in the populations of the several States and Territories, and of Australia as a whole, during each of the eight intercensal periods from 1891 to 1966.

POPULATION—INTERCENSAL INCREASES (a): STATES AND TERRITORIES, 1891-1966

State or Territory	1891-1901 (10 years)	1901-1911 (10 years)	1911-1921 (10 years)	1921-1933 (12½ years)	1933-1947 (14 years)	1947-1954 (7 years)	1954-1961 (7 years)	1961-1966 (5 years)
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## NUMERICAL INCREASE

New South Wales (b) ....	227,709	293,602	453,637	500,476	383,991	438,691	493,484	316,809
Victoria ....	60,982	114,481	215,729	288,981	234,440	397,640	477,772	289,413
Queensland ....	104,411	107,684	150,159	191,562	158,881	211,844	200,569	144,857
South Australia ....	42,813	50,212	86,602	85,789	65,124	151,021	172,246	122,535
Western Australia ....	134,342	97,990	50,618	106,120	63,628	137,291	96,858	100,044
Tasmania ....	25,808	18,736	22,569	13,819	29,479	51,674	41,588	21,095
Northern Territory ....	-87	-1,501	557	983	6,018	5,601	10,626	10,338
Australian Capital Territory ....	(c)	(c)	858	6,375	7,958	13,410	28,513	37,185
AUSTRALIA ....	595,978	681,204	980,729	1,194,105	949,519	1,407,172	1,521,656	1,042,276

## PROPORTIONAL INCREASE (per cent)

New South Wales (b) ....	20.20	21.67	27.55	23.83	14.76	14.70	14.41	8.09
Victoria ....	5.35	9.53	16.40	18.87	12.88	19.35	19.48	9.88
Queensland ....	26.52	21.62	24.79	25.34	16.77	19.15	15.21	9.54
South Australia ....	13.57	14.01	21.20	17.33	11.21	23.38	21.61	12.64
Western Australia ....	269.86	53.22	17.94	31.89	14.50	27.32	15.14	13.58
Tasmania ....	17.60	10.86	11.80	6.46	12.95	20.10	13.47	6.02
Northern Territory ....	-1.78	-31.20	16.83	25.42	124.08	51.54	64.52	38.15
Australian Capital Territory ....	(c)	(c)	50.06	247.86	88.95	79.33	94.06	63.21
AUSTRALIA ....	18.75	18.05	22.01	21.97	14.32	18.57	16.93	9.92

## AVERAGE ANNUAL RATE OF INCREASE (per cent)

New South Wales (b) ....	1.86	1.97	2.46	1.76	0.99	1.98	1.94	1.57
Victoria ....	0.52	0.91	1.53	1.42	0.87	2.56	2.58	1.90
Queensland ....	2.38	1.98	2.24	1.86	1.11	2.53	2.04	1.84
South Australia ....	1.28	1.32	1.94	1.31	0.76	3.05	2.83	2.41
Western Australia ....	13.97	4.36	1.66	2.29	0.97	3.51	2.03	2.58
Tasmania ....	1.63	1.04	1.12	0.51	0.87	2.65	1.82	1.18
Northern Territory ....	-0.18	-3.67	1.57	1.87	5.93	6.12	7.37	6.68
Australian Capital Territory ....	(c)	(c)	4.14	10.71	4.65	8.70	9.93	10.29
AUSTRALIA ....	1.73	1.67	2.01	1.63	0.96	2.46	2.26	1.91

(a) Minus sign (—) denotes decrease. (b) Includes Australian Capital Territory prior to 1911. (c) Part of New South Wales prior to 1911.

## GEOGRAPHICAL DISTRIBUTION

## Urban and Rural Populations

For the purpose of presenting statistics obtained at the Census of 30 June 1966, new methods were used in the delimitation of metropolitan areas and certain other urban centres. Briefly, these are as follows:

- (i) Around each capital city and each town with a population of 75,000 or more two boundaries were drawn.

The *outer* boundary, which is fixed, circumscribes the area in close economic and social contact with the main city or town. These areas are designated Statistical Divisions (for State capital cities) or Statistical Districts (for Canberra and some other cities). The *inner* boundary indicates the area within which, at the time of the Census, there was a density of at least 500 persons per square mile. This density is determined for each Census collector's district (the smallest geographical area available). From Census to Census as urbanisation proceeds this *inner* boundary will move outwards to encompass peripheral development. Some specified areas of lower density (e.g. industrial areas) are classified as urban on other grounds.

- (ii) The principal urban centre within each Capital City Statistical Division is designated the 'Metropolitan Area'.
- (iii) Population clusters of 1,000 or more persons having a minimum density of 500 persons per square mile are designated 'Urban Centres'.

In determining the outer boundary of each Capital City Statistical Division the aim was to delimit, for at least two or three decades, the region expected to be in close contact with the inner urban area, after making allowances for further urban development, including satellite towns, improvements in transport, and other factors.

The Perth Statistical Division and its component local government areas are shown on the map of Western Australia at the back of the Year Book. The area of the Division at 30 June 1966 was 2,072 square miles.

The Perth Metropolitan Area (delimited by the *inner* boundary as described above) embraced an area of 147.51 square miles at 30 June 1966. It comprised the Cities of Fremantle, Nedlands, Perth, South Perth, and Subiaco; the Towns of Claremont, Cottesloe, East Fremantle, Midland, and Mosman Park; the Shires of Bassendean and Peppermint Grove; part of the Town of Melville (declared a City with effect from 3 May 1968), and parts of the Shires of Bayswater, Belmont, Canning, Cockburn, Gosnells, Mundaring, Perth, Swan-Guildford, and Wanneroo.

A detailed statement on the concepts and criteria adopted in the delimitation of metropolitan areas and other urban centres is contained in *Field Count Statement No. 4—Population: Principal Urban Centres of Australia* published November 1966 by the Commonwealth Statistician, Canberra.

Comparable information for the 1961 Census has been prepared, using the new concepts. Because the 1961 Census collectors' districts were not always suitable for this purpose, some estimations have had to be made.

The following tables show, for 1961 and 1966, a division of the population of each State and Territory into *Urban* and *Rural* on the basis of the new concepts. *Metropolitan Urban* refers to Metropolitan Areas as defined above. *Other Urban* represents the aggregation of the populations of Urban Centres outside the Metropolitan Areas, as in the table on page 135. *Rural* comprises the remaining portion of each State or Territory. The term *Migratory* refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

## POPULATION

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES  
CENSUSES, 1961 AND 1966  
(Persons)

State or Territory	Urban			Rural	Migratory	Total population
	Metro-politan	Other	Total			
CENSUS, 30 JUNE 1961						
New South Wales ....	2,197,022	1,118,057	3,315,079	591,343	10,591	3,917,013
Victoria ....	1,858,534	580,939	2,439,473	486,031	4,609	2,930,113
Queensland ....	587,634	540,870	1,128,504	388,336	1,988	1,518,828
South Australia ....	580,449	178,227	758,676	206,726	3,938	969,340
Western Australia ....	423,930	124,427	548,357	185,255	3,017	736,629
Tasmania ....	110,217	125,925	236,142	113,319	879	350,340
Northern Territory ....	.....	19,056	19,056	7,775	264	27,095
Australian Capital Territory	55,746	....	55,746	3,082	....	58,828
AUSTRALIA ....	5,813,532	2,687,501	8,501,033	1,981,867	25,286	10,508,186

CENSUS, 30 JUNE 1966						
New South Wales ....	2,446,345	1,211,472	3,657,817	566,946	9,059	4,233,822
Victoria .....	2,110,168	643,598	2,753,766	462,772	2,988	3,219,526
Queensland .....	718,822	558,115	1,276,937	384,689	2,059	1,663,685
South Australia .....	727,916	173,796	901,712	188,590	1,573	1,091,875
Western Australia .....	499,969	140,267	640,236	193,399	3,038	836,673
Tasmania .....	119,469	141,512	260,981	109,779	675	371,435
Northern Territory .....	.....	28,753	28,753	8,385	295	37,433
Australian Capital Territory .....	92,308	.....	92,308	3,705	.....	96,013
AUSTRALIA .....	6,714,997	2,897,513	9,612,510	1,918,265	19,687	11,550,462

(a) See letterpress preceding table for definitions of *Urban*, *Rural*, etc.

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES  
PERCENTAGE DISTRIBUTION: CENSUSES, 1961 AND 1966  
(Per cent)

State or Territory	Urban			Rural	Migratory	Total
	Metro- politan	Other	Total			
CENSUS, 30 JUNE 1961						
New South Wales ....	56.09	28.54	84.63	15.10	0.27	100.00
Victoria ....	63.43	19.83	83.26	16.59	0.16	100.00
Queensland ....	38.69	35.61	74.30	25.57	0.13	100.00
South Australia ....	59.88	18.39	78.27	21.33	0.41	100.00
Western Australia ....	57.55	16.89	74.44	25.15	0.41	100.00
Tasmania ....	31.46	35.94	67.40	32.35	0.25	100.00
Northern Territory ....	....	70.33	70.33	28.70	0.97	100.00
Australian Capital Territory	94.76	....	94.76	5.24	....	100.00
AUSTRALIA ....	55.32	25.58	80.90	18.86	0.24	100.00

CENSUS, 30 JUNE 1966						
New South Wales ....	57.78	28.61	86.40	13.39	0.21	100.00
Victoria .....	65.54	19.99	85.53	14.37	0.09	100.00
Queensland .....	43.21	33.55	76.75	23.12	0.12	100.00
South Australia .....	66.67	15.92	82.58	17.27	0.14	100.00
Western Australia .....	59.76	16.76	76.52	23.12	0.36	100.00
Tasmania .....	32.16	38.10	70.26	29.56	0.18	100.00
Northern Territory .....	.....	76.81	76.81	22.40	0.79	100.00
Australian Capital Territory .....	96.14	.....	96.14	3.86	.....	100.00
AUSTRALIA .....	58.14	25.09	83.22	16.61	0.17	100.00

(a) See page 133 for definitions of *Urban*, *Rural*, etc.

The following table shows the population of urban centres in Western Australia at the Censuses of 1961 and 1966. For *Metropolitan* and *Other Urban* centres, which are delineated by moving boundaries (see letterpress on page 133), boundaries for 1961 have been redrawn according to the new criteria. The urban populations (partly estimated) within these boundaries are shown in this table for comparison with the 1966 population. The intercensal increase or decrease between 1961 and 1966 may reflect population change within the original 1961 boundary; urban growth beyond the original boundary; or the merging of *Other Urban* areas with the *Metropolitan Area*.

POPULATION—METROPOLITAN, OTHER URBAN, RURAL, AND MIGRATORY (a)  
CENSUSES, 1961 AND 1966

Area				Population				Intercensal increase or decrease		
				Census, 30 June—				Number	Per cent	Average annual rate (per cent)
				1961	1966					
					Persons	Males	Females			
Perth Metropolitan Area (a) ....				423,930	244,762	255,207	499,969	76,039	17.94	3.35
Other urban centres (a)—										
Kalgoorlie-Boulder .....				21,247	10,358	9,550	19,908	— 1,339	— 6.30	— 1.29
Bunbury .....				13,186	7,789	7,670	15,459	2,273	17.24	3.23
Geraldton .....				10,894	6,245	5,880	12,125	1,231	11.30	2.16
Albany .....				10,526	5,598	5,821	11,419	893	8.48	1.64
Collie .....				7,547	3,843	3,785	7,628	81	1.07	0.21
Northam .....				7,200	3,825	3,575	7,400	200	2.78	0.55
Narrogin .....				4,620	2,396	2,465	4,861	241	5.22	1.02
Busselton .....				3,495	2,091	2,187	4,278	783	22.40	4.13
Medina-Calista .....				3,269	2,085	2,047	4,132	863	26.40	4.80
Rockingham-Safety Bay .....				1,726	1,911	1,856	3,767	2,041	118.25	16.89
Merredin .....				3,029	1,927	1,672	3,599	570	18.82	3.51
Katanning .....				3,360	1,782	1,724	3,506	146	4.35	0.85
Armadale .....				2,565	1,694	1,769	3,463	898	35.01	6.19
Manjimup .....				2,914	1,578	1,608	3,186	272	9.33	1.80
Kalamunda-Gooseberry Hill .....				2,488	1,522	1,546	3,068	580	23.31	4.28
Carnarvon .....				1,809	1,572	1,384	2,956	1,147	63.41	10.32
Mandurah .....				2,121	1,332	1,398	2,730	609	28.71	5.18
Esperance....				1,111	1,414	1,263	2,677	1,566	140.95	19.23
Harvey .....				2,046	1,048	1,018	2,066	20	0.98	0.19
Norseman .....				1,980	995	868	1,863	— 117	— 5.91	— 1.21
Port Hedland (b) .....				965	1,087	691	1,778	813	84.25	13.00
Wagin .....				1,608	902	848	1,750	142	8.83	1.71
Mount Barker .....				1,532	814	780	1,594	62	4.05	0.80
Broome .....				1,222	963	607	1,570	348	28.48	5.14
Bridgetown .....				1,565	796	773	1,569	4	0.26	0.05
Derby (c) .....				994	760	664	1,424	430	43.26	7.45
York .....				1,524	734	687	1,421	— 103	— 6.76	— 1.39
Kellerberrin .....				1,323	657	686	1,343	20	1.51	0.30
Kwinana Industrial (d) .....				1,104	676	596	1,272	168	15.22	2.87
Moora .....				1,145	625	560	1,185	40	3.49	0.69
Wyndham (c) .....				958	759	397	1,156	198	20.67	3.83
Dampier .....				(e)	1,007	73	1,080	n.a.	n.a.	n.a.
Wundowie .....				1,102	555	485	1,040	— 62	— 5.63	— 1.15
Waroona .....				1,005	510	503	1,013	8	0.80	0.16
Gnowangerup (f) .....				740	494	487	981	241	32.57	5.80
Donnybrook .....				1,011	(g)	(g)	(g)	n.a.	n.a.	n.a.
Pemberton .....				1,201	(h)	(h)	(h)	n.a.	n.a.	n.a.
Total, Other urban (i) ....				124,427	72,344	67,923	140,267	15,840	12.73	2.43
Total urban (i) ....				548,357	317,106	323,130	640,236	91,879	16.76	3.15
Rural ....				185,255	107,077	86,322	193,399	8,144	4.40	0.86
Migratory (a) ....				3,017	2,508	530	3,038	21	0.70	n.a.
WESTERN AUSTRALIA ....				736,629	426,691	409,982	836,673	100,044	13.58	2.58

n.a. denotes 'not applicable'.

(a) See letterpress on page 133. (b) Non-urban in 1961. (c) Classified as urban in 1961, as population inclusive of full-blood Aborigines exceeded 1,000. (d) Excludes Medina-Calista. (e) Non-urban in 1961; population not available. (f) Non-urban in 1961. Classified as urban in 1966, as population inclusive of full-blood Aborigines exceeded 1,000. (g) Non-urban in 1966; population 981. (h) Non-urban in 1966; population 931. (i) Figures for 1961 exclude populations shown for Port Hedland and Gnowangerup; see notes (b) and (f).

### Population in Statistical Divisions

Western Australia is divided into a number of municipal districts for the purposes of local government administration. These districts, of which there were 144 at 30 June 1966, are used as the basis of presentation of data derived not only from the Census of Population and Housing but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form. The Statistical Divisions and their component local government areas are shown on the map of the State appearing at the back of the Year Book.

In 1929, when statistics were first presented according to Statistical Divisions, Western Australia was divided into seven such areas. There are currently ten Statistical Divisions, and these have been used as the basis of compilation of the particulars in the following tables. The figures shown refer to the areas contained within the several Divisions as they existed at the Census of 30 June 1966.

The Perth Statistical Division, in common with similar Divisions for each of the other State capital cities, was used for the first time in census tabulations at the Census of 30 June 1966 (see preceding section *Urban and Rural Populations*).

#### STATISTICAL DIVISIONS —POPULATION AT EACH CENSUS FROM 1911 (Figures compiled on the basis of the 1966 boundaries)

Statistical Division	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
POPULATION ('000)							
Perth Statistical Division	116.2	170.2	230.3	303.0	395.0	475.4	558.8
Other Divisions—							
South-West	27.0	34.4	50.4	52.0	68.6	71.6	72.8
Southern Agricultural	15.9	20.5	27.0	24.9	36.1	41.6	44.5
Central Agricultural	31.5	40.5	53.6	43.8	55.9	57.6	58.4
Northern Agricultural	13.4	17.7	26.6	24.7	32.1	35.8	38.3
Eastern Goldfields	55.0	33.7	33.2	37.7	34.6	34.1	33.9
Central	9.6	5.0	7.9	6.4	4.8	4.0	3.5
North-West	2.1	2.1	2.6	2.6	4.2	4.6	8.4
Pilbara	2.5	1.4	1.8	1.7	2.7	3.2	7.4
Kimberley (a)	2.0	2.2	2.1	2.8	3.5	5.7	7.6
Total (a)	158.9	157.3	205.3	196.5	242.5	258.2	274.8
Total, all Divisions (a)	275.1	327.5	435.7	499.5	637.5	733.6	833.6
Migratory (a)	7.0	5.2	3.2	3.0	2.3	3.0	3.0
WESTERN AUSTRALIA	282.1	332.7	438.9	502.5	639.8	736.6	836.7
PROPORTION OF STATE TOTAL (per cent)							
Perth Statistical Division	41.18	51.16	52.49	60.29	61.75	64.54	66.79
Other Divisions—							
South-West	9.57	10.33	11.49	10.34	10.72	9.72	8.70
Southern Agricultural	5.63	6.16	6.15	4.96	5.65	5.65	5.32
Central Agricultural	11.16	12.16	12.22	8.71	8.74	7.82	6.98
Northern Agricultural	4.75	5.32	6.06	4.91	5.01	4.86	4.57
Eastern Goldfields	19.51	10.13	7.57	7.51	5.40	4.63	4.06
Central	3.39	1.49	1.79	1.27	0.75	0.54	0.42
North-West	0.75	0.62	0.60	0.52	0.66	0.62	1.00
Pilbara	0.87	0.42	0.42	0.33	0.41	0.44	0.88
Kimberley (a)	0.70	0.65	0.48	0.55	0.55	0.77	0.91
Total (a)	56.33	47.28	46.78	39.11	37.90	35.05	32.85
Total, all Divisions (a)	97.51	98.44	99.27	99.41	99.65	99.59	99.64
Migratory (a)	2.49	1.56	0.73	0.59	0.35	0.41	0.36
WESTERN AUSTRALIA	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) At censuses prior to 1954, the pearling fleet based on Broome was classified to *Migratory* (see letterpress on page 133). The estimated population involved was 2,500 in 1911; 1,500 in 1921; 800 in 1933; and 200 in 1947. From 1954, pearling crews have been included in the population of Broome.

## STATISTICAL DIVISIONS—POPULATION AT CENSUSES, 1961 AND 1966

Statistical Division	Census, 30 June 1961 (a)				Census, 30 June 1966			
	Males	Females	Persons	Masculinity (b)	Males	Females	Persons	Masculinity (b)
Perth Statistical Division	233,584	241,814	475,398	96·60	274,872	283,949	558,821	96·80
Other Divisions—								
South-West	37,314	34,323	71,637	108·71	37,460	35,363	72,823	105·93
Southern Agricultural	21,999	19,624	41,623	112·10	23,345	21,183	44,528	110·21
Central Agricultural	30,962	26,628	57,590	116·28	31,402	26,994	58,396	116·33
Northern Agricultural	19,569	16,199	35,768	120·80	20,834	17,435	38,269	119·50
Eastern Goldfields	18,430	15,712	34,142	117·30	18,416	15,514	33,930	118·71
Central	2,376	1,604	3,980	148·13	2,040	1,446	3,486	141·08
North-West	2,754	1,809	4,563	152·24	5,383	2,972	8,355	181·12
Pilbara	2,119	1,124	3,243	188·52	5,547	1,836	7,383	302·12
Kimberley	3,816	1,852	5,668	206·05	4,884	2,760	7,644	176·96
Total	139,339	118,875	258,214	117·21	149,311	125,503	274,814	118·97
Total, all Divisions	372,923	360,689	733,612	103·39	424,183	409,452	833,635	103·60
Migratory (c)	2,529	488	3,017	518·24	2,508	530	3,038	473·21
WESTERN AUSTRALIA	375,452	361,177	736,629	103·95	426,691	409,982	836,673	104·08

(a) For the purpose of this table, the figures shown for 30 June 1961 have been adjusted to conform to the boundaries of Statistical Divisions as they existed at the 1966 Census. (b) Number of males to each 100 females. (c) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

STATISTICAL DIVISIONS—ANALYSIS OF POPULATION INCREASE  
30 JUNE 1961 TO 30 JUNE 1966

Statistical Division	Intercensal increase of population (a)				
	By natural increase (b)	By migration	Total		
			Number	Per cent	Average annual rate (per cent)
Perth Statistical Division	28,079	55,344	83,423	17·55	3·29
Other Divisions—					
South-West	5,673	— 4,487	1,186	1·66	0·33
Southern Agricultural	3,930	— 1,025	2,905	6·98	1·36
Central Agricultural	6,074	— 5,268	806	1·40	0·28
Northern Agricultural	4,133	— 1,632	2,501	6·99	1·36
Eastern Goldfields	2,910	— 3,122	— 212	— 0·62	— 0·12
Central	453	— 947	— 494	— 12·41	— 2·62
North-West	584	3,208	3,792	83·10	12·86
Pilbara	495	3,645	4,140	127·66	17·88
Kimberley	791	1,185	1,976	34·86	6·16
Total	25,043	— 8,443	16,600	6·43	1·25
Total, all Divisions	53,122	46,901	100,023	13·63	2·59
Migratory (c)	n.a.	21	21	0·70	n.a.
WESTERN AUSTRALIA	53,122	46,922	100,044	13·58	2·58

(a) Minus sign (—) denotes decrease. (b) Excess of births registered over deaths registered. (c) See note (c) to previous table.

The growing urbanisation occurring in other States is also apparent in Western Australia. The population of the Perth Statistical Division at the Census of 30 June 1966 was 558,821, or 66·8 per cent of the State total, compared with 475,398 (64·5 per cent) five years earlier, an increase of 83,423 persons or 17·5 per cent. The State's natural increase between the Censuses was 53,122 of which the Perth Statistical Division contributed 28,079. In addition, this Division experienced a net gain by migration of 55,344.

The larger towns of the Agricultural and South-West Statistical Divisions also showed substantial population increases, the greatest being those of Bunbury (2,273 persons; or 17.2 per cent), Geraldton (1,231; 11.3 per cent) and Albany (893; 8.5 per cent).

The total population in the area outside the Perth Statistical Division rose by 16,600 or 6.4 per cent. The natural increase recorded in the area was 25,043, so that there was a loss of 8,443 persons by migration. Of the net increase of 16,600 persons, the Pilbara Division accounted for almost one quarter with a population gain of 4,140 and showed the greatest proportional increase, 127.7 per cent. Other Divisions showing an increase were North-West, 3,792 (83.1 per cent); Southern Agricultural, 2,905 (7.0 per cent); Northern Agricultural, 2,501 (7.0 per cent); Kimberley, 1,976 (34.9 per cent); South-West, 1,186 (1.7 per cent) and Central Agricultural, 806 (1.4 per cent). Divisions which experienced a decrease in population were Central which lost 494 persons (-12.4 per cent) and Eastern Goldfields with a decline of 212 (-0.6 per cent).

The Eastern Goldfields, Central and Pilbara Statistical Divisions together comprised an area of 638,508 square miles (or almost two-thirds of the State) and had a population of only 44,799 persons at the Census of 30 June 1966. A low rainfall renders much of it virtually uninhabitable and desert or near-desert conditions prevail over some 350,000 square miles which includes much of the eastern and northern parts of the area and extends into the southern portion of the Kimberley Statistical Division. Almost no part of this desert area has an annual rainfall greater than ten inches and a considerable proportion has much less. Of the total of 44,799 persons enumerated in the three Divisions at the Census, more than two-thirds were in the towns of Kalgoorlie-Boulder (19,908), Esperance (2,677), Norseman (1,863), Port Hedland (1,778), Dampier (1,080), Wittenoom (876), Southern Cross (853), Mount Magnet (640), Meekatharra (570), Tom Price (549), Coolgardie (473) and Goldsworthy (381).

### Population of South-West Land Division

The South-West Land Division, as defined in the *Land Act, 1933-1969*, often has particular importance in matters of legislation and administration. Its boundaries are almost coincident with those of the area formed by the aggregation of the Perth Statistical Division and the South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Statistical Divisions. It embraces an area of 98,305 square miles, a little more than one-tenth of the whole State (975,920 square miles), and had a population of 772,800 persons at the 1966 Census, equivalent to 92.4 per cent of the State total, compared with 682,000 (92.6 per cent) in 1961.

### Population North of 26° S. Latitude

For administrative and other purposes, the portion of the State lying north of the 26th parallel of latitude frequently has special significance. This area, which embraces part of the Central Statistical Division, almost all of the North-West Statistical Division, and the whole of the Pilbara and Kimberley Statistical Divisions, is 529,486 square miles in extent and is therefore somewhat greater in area than half the entire State. It had a population of 13,657 persons at the 1961 Census and 23,591 in 1966. Of this total, more than three-fifths were enumerated in the coastal towns of Carnarvon (2,956), Port Hedland (1,778), Broome (1,570), Derby (1,424), Wyndham (1,156), Dampier (1,080) and Exmouth (880); the mining centres of Wittenoom (876), Yampi (593), Tom Price (549) and Goldsworthy (381); and the Ord River agricultural settlement at Kununurra (948).

### POPULATION DENSITY

The most densely populated part of the State is the Perth Metropolitan Area (see letterpress *Urban and Rural Populations* on page 133). At the Census of 30 June 1966 it had a population of 499,969 persons and an area of 147.51 square miles, representing a density of 3,389 persons per square mile. Among the Statistical Divisions, Perth with a population of 558,821 and 2,072 square miles in area showed the highest density, 270 persons per square mile. The Central Statistical Division was the most sparsely populated



with an area of 218,011 square miles (more than one-fifth of the entire State) and a Census population of only 3,486 persons, equivalent to an average of one person to every sixty-three square miles.

#### STATISTICAL DIVISIONS—AREA, POPULATION AND DENSITY: CENSUS, 30 JUNE 1966

Statistical Division	Area		Population					
	Square miles	Per cent of total	Males	Females	Persons			
					Total	Per cent of total	Density (per square mile)	
Perth Statistical Division	2,072	0·21	274,872	283,949	558,821	66·79	269·70	
Other Divisions—								
South-West	11,030	1·13	37,460	35,363	72,823	8·70	6·60	
Southern Agricultural	22,025	2·26	23,345	21,183	44,528	5·32	2·02	
Central Agricultural	30,270	3·10	31,402	26,994	58,396	6·98	1·93	
Northern Agricultural	33,921	3·48	20,834	17,435	38,269	4·57	1·13	
Eastern Goldfields	249,035	25·52	18,416	15,514	33,930	4·06	0·14	
Central	218,011	22·34	2,040	1,446	3,486	0·42	0·02	
North-West	75,731	7·76	5,383	2,972	8,355	1·00	0·11	
Pilbara	171,462	17·57	5,547	1,836	7,383	0·88	0·04	
Kimberley	162,363	16·64	4,884	2,760	7,644	0·91	0·05	
Total	973,848	99·79	149,311	125,503	274,814	32·85	0·28	
Total, all Divisions	975,920	100·00	424,183	409,452	833,635	99·64	0·85	
Migratory (a)	n.a.	n.a.	2,508	530	3,038	0·36	n.a.	
WESTERN AUSTRALIA	975,920	100·00	426,691	409,982	836,673	100·00	0·86	

n.a. denotes 'not applicable'.

(a) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

Western Australia had a population density at the 1966 Census of only 0·86 persons per square mile, compared with an average of 3·89 for Australia as a whole. Victoria was the most densely populated State, having an average of 36·63 persons per square mile.

#### AREA, POPULATION AND DENSITY—STATES AND TERRITORIES: CENSUS, 30 JUNE 1966

State or Territory	Area		Population					
	Square miles	Per cent of total	Males	Females	Persons			
					Total	Per cent of total	Density (per square mile)	
New South Wales	309,433	10·43	2,124,462	2,109,360	4,233,822	36·66	13·68	
Victoria	87,884	2·96	1,613,904	1,605,622	3,219,526	27·87	36·63	
Queensland	667,000	22·47	843,897	819,788	1,663,685	14·40	2·49	
South Australia	380,070	12·81	548,530	543,345	1,091,875	9·45	2·87	
Western Australia	975,920	32·88	426,691	409,982	836,673	7·24	0·86	
Tasmania	26,383	0·89	187,390	184,045	371,435	3·22	14·08	
Northern Territory	520,280	17·53	21,508	15,925	37,433	0·32	0·07	
Australian Capital Territory	939	0·03	49,977	46,036	96,013	0·83	102·25	
AUSTRALIA	2,967,909	100·00	5,816,359	5,734,103	11,550,462	100·00	3·89	

#### ABORIGINAL POPULATION

Reference is made on page 126 to the exclusion of *full-blood* Aborigines from the census tabulations. Aborigines have, however, been enumerated in all censuses of the Commonwealth, although the degree of coverage and information obtained have varied substantially since 1911. Since the Census taken in 1933, the adequacy of the particulars obtained has improved progressively, as a result of an increasing number of Aborigines coming into contact with more populated areas.

At the 1966 Census extensive arrangements were made to obtain as full a coverage of full-blood Aborigines as possible and to enumerate fully those Aborigines 'out of contact'. Throughout Australia the assistance of Aboriginal welfare bodies, mission superintendents, sheep and cattle station owners, patrol officers and police was sought in an effort to include all Aborigines and to obtain complete information about them. Statistics relating to characteristics of Aborigines enumerated at the 1966 Census have been published by the Commonwealth Statistician, Canberra in a bulletin *The Aboriginal Population of Australia—Summary of Characteristics*. Some information selected from this bulletin is shown in the following tables.

Prior to the 1966 Census, Aborigines 'out of contact' were not enumerated and estimates of their numbers were made by authorities responsible for Aboriginal welfare. The total number of Aborigines not contacted by collectors at the 1954 Census was estimated to be 12,956, comprising 2,311 in Queensland, 1,760 in South Australia, 3,516 in Western Australia and 5,369 in the Northern Territory. It is estimated that, at the 1961 Census, 2,000 Aborigines in Western Australia and 1,944 in the Northern Territory were not contacted by collectors.

The total numbers of full-blood Aborigines and half-blood Aborigines enumerated at the Censuses of 1954, 1961 and 1966 are shown in the next table. For census purposes, a full-blood Aboriginal is defined as a person who is described on the census schedule as having more than one-half Aboriginal blood (see letterpress *Aborigines* on page 126).

#### ABORIGINAL POPULATION (a)—STATES AND TERRITORIES CENSUSES, 1954 TO 1966

State or Territory	Census, 30 June 1954			Census, 30 June 1961			Census, 30 June 1966		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
New South Wales ....	6,278	5,935	12,213	7,494	7,222	14,716	7,343	6,876	14,219
Victoria ....	691	704	1,395	899	897	1,796	856	934	1,790
Queensland ....	8,368	7,781	(b)16,149	10,146	9,550	19,696	9,644	9,359	19,003
South Australia ....	1,675	1,537	(b) 3,212	2,607	2,277	4,884	2,914	2,591	5,505
Western Australia ....	6,564	6,135	(b)12,699	8,351	7,925	(b)16,276	9,505	8,934	18,439
Tasmania ....	50	43	93	24	14	38	19	17	36
Northern Territory ....	5,990	5,798	(b)11,788	9,013	8,747	(b)17,760	10,651	10,468	21,119
Australian Capital Territory	100	73	173	78	65	143	52	44	96
AUSTRALIA ....	29,716	28,006	(b)57,722	38,612	36,697	(b)75,309	40,984	39,223	80,207

(a) Full-blood Aborigines and half-blood Aborigines; see letterpress preceding table. Enumerated population only; see also note (b). (b) Excludes Aborigines 'out of contact' and therefore not enumerated by census collectors. For estimates of the numbers so excluded see letterpress preceding table.

#### ABORIGINAL POPULATION (a)—STATISTICAL DIVISIONS WESTERN AUSTRALIA: CENSUS, 30 JUNE 1966

Statistical Division	Males	Females	Persons	
			Total	Per cent of total
Perth Statistical Division ....	576	587	1,163	6.31
Other Divisions—				
South-West ....	248	240	488	2.65
Southern Agricultural ....	616	592	1,208	6.55
Central Agricultural ....	918	837	1,755	9.52
Northern Agricultural ....	791	796	1,587	8.61
Eastern Goldfields ....	1,079	1,083	2,162	11.73
Central ....	633	513	1,146	6.22
North-West ....	616	543	1,159	6.29
Pilbara ....	984	882	1,866	10.12
Kimberley ....	3,044	2,861	5,905	32.02
Total ....	8,929	8,347	17,276	93.69
WESTERN AUSTRALIA ....	9,505	8,934	18,439	100.00

(a) Full-blood Aborigines and half-blood Aborigines; see letterpress preceding previous table.

**ABORIGINAL POPULATION (a)—METROPOLITAN, OTHER URBAN, AND RURAL (b)  
WESTERN AUSTRALIA AND AUSTRALIA: CENSUS, 30 JUNE 1966**

Area	Western Australia				Australia			
	Males	Females	Persons		Males	Females	Persons	
			Total	Per cent of total			Total	Per cent of total
Urban—								
Metropolitan .....	376	423	799	4.33	2,590	2,749	5,339	6.66
Other .....	1,794	1,877	3,671	19.91	8,187	8,370	16,557	20.64
Total .....	2,170	2,300	4,470	24.24	10,777	11,119	21,896	27.30
Rural .....	7,335	6,634	13,969	75.76	30,207	28,104	58,311	72.70
GRAND TOTAL	9,505	8,934	18,439	100.00	40,984	39,223	80,207	100.00

(a) Full-blood Aborigines and half-blood Aborigines; see letterpress on pages 139-40.

(b) See letterpress on page 133.

**ABORIGINAL POPULATION (a)—AGE DISTRIBUTION  
WESTERN AUSTRALIA AND AUSTRALIA: CENSUS, 30 JUNE 1966**

Age last birthday (years)	Western Australia				Australia			
	Males	Females	Persons		Males	Females	Persons	
			Total	Per cent of total			Total	Per cent of total
0-4 .....	1,513	1,447	2,960	16.05	6,902	6,700	13,602	16.96
5-9 .....	1,397	1,345	2,742	14.87	6,043	5,858	11,901	14.84
10-14 .....	1,130	1,137	2,267	12.29	4,962	4,941	9,903	12.35
15-19 .....	776	762	1,538	8.34	3,633	3,650	7,283	9.08
20-24 .....	672	591	1,263	6.85	3,057	2,776	5,833	7.27
25-29 .....	553	539	1,092	5.92	2,579	2,560	5,139	6.41
30-34 .....	530	541	1,071	5.81	2,373	2,419	4,792	5.97
35-39 .....	483	414	897	4.86	2,074	2,057	4,131	5.15
40-44 .....	431	380	811	4.40	1,804	1,668	3,472	4.33
45-49 .....	364	314	678	3.68	1,530	1,344	2,874	3.58
50-54 .....	285	254	539	2.92	1,199	1,056	2,255	2.81
55-59 .....	259	202	461	2.50	940	842	1,782	2.22
60-64 .....	202	256	458	2.48	790	812	1,602	2.00
65-69 .....	281	205	486	2.64	886	697	1,583	1.97
70-74 .....	178	113	291	1.58	581	398	979	1.22
75 and over .....	112	101	213	1.16	388	322	710	0.89
Not stated .....	339	333	672	3.64	1,243	1,123	2,366	2.95
Total .....	9,505	8,934	18,439	100.00	40,984	39,223	80,207	100.00
Under 21 .....	4,969	4,820	9,789	53.09	22,208	21,802	44,010	54.87
21-64 .....	3,626	3,362	6,988	37.90	15,678	14,881	30,559	38.10
65 and over .....	571	419	990	5.37	1,855	1,417	3,272	4.08
Not stated .....	339	333	672	3.64	1,243	1,123	2,366	2.95
Total .....	9,505	8,934	18,439	100.00	40,984	39,223	80,207	100.00

(a) Full-blood Aborigines and half-blood Aborigines; see letterpress on pages 139-40.

**ESTIMATES OF POPULATION**

For dates other than those of the periodic census of population, estimates are based on records of births and deaths and of movements of population interstate and overseas. Estimates of the population of Australia and of each of the States and Territories are prepared by the Commonwealth Statistician as at 31 March, 30 June, 30 September and 31 December in each year. Because the available records of interstate movement are incomplete, these intercensal estimates as they apply to States and Territories are approximate and are revised when the results of the next succeeding census become known.

# Mean Population

Mean populations are calculated for twelve-month periods to provide a satisfactory average basis for calculations requiring allowance for the continuous change in population figures during such periods. Estimates of mean population for 1901 and later years have been derived from the formula:

$$\text{Mean population} = \frac{a + 4b + 2c + 4d + e}{12}$$

where *a*, *b*, *c*, *d*, and *e*, respectively, are the populations at the end of the quarter immediately preceding the year and at the end of each of the four succeeding quarters, e.g. in the case of a calendar year, 31 December of the preceding year, and 31 March, 30 June, 30 September and 31 December of the year under consideration. This formula gives a close approximation to the mean of a theoretical population progressing smoothly through the five values *a*, *b*, *c*, *d*, and *e*.

The estimated mean population of Western Australia is shown in the next table for each financial and calendar year in the period from 1 July 1964 to 31 December 1969.

# Population Estimates

**States and Territories.** As a result of the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution, to which reference is made on page 126, current population estimates no longer exclude full-blood Aborigines. Estimates for earlier dates and periods back to the Census of 30 June 1961 have also been prepared on the basis of *total* population (*i.e.* including Aborigines). The final results of the 1966 Census, inclusive of all persons enumerated, have been taken into account in the preparation of these estimates. Figures for dates and periods subsequent to 30 June 1966 are subject to revision after the 1971 Census.

The following table shows estimates of the population of Western Australia and the elements of population increase during the period from 1 July 1964 to 31 December 1969.

## POPULATION ESTIMATES

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to *total* population, *i.e.* including Aborigines.

Year	Population at end of year (a)			Increase during year			Mean population (a)		
	Males	Females	Persons	Natural increase (b) (c)	Estimated net migration (c) (d)	Total increase (a)	Males	Females	Persons
YEAR ENDED 30 JUNE									
1965	421,017	404,508	825,525	9,825	6,987	17,082	416,623	400,534	817,157
1966	(e)432,569	(e)415,531	(e)848,100	9,878	12,491	22,575	427,000	410,290	837,290
1967	446,709	429,653	876,362	11,058	17,204	28,262	439,506	422,624	862,130
1968	463,304	446,105	909,409	11,525	21,522	33,047	454,773	437,764	892,537
1969	481,846	464,548	946,394	12,712	24,273	36,985	473,011	455,933	928,943
YEAR ENDED 31 DECEMBER									
1965	427,330	410,918	838,248	9,912	9,963	20,127	421,437	405,044	826,481
1966	439,680	423,005	862,685	10,235	14,046	24,437	432,865	415,972	848,837
1967	454,743	438,020	892,763	11,244	18,834	30,078	446,945	430,052	876,997
1968	473,779	456,979	930,758	12,073	25,922	37,995	463,595	446,528	910,123
1969	491,737	475,003	966,740	13,404	22,578	35,982	482,135	465,068	947,203

(a) Including Aborigines. (b) Excess of births registered over deaths registered. (c) Includes Aborigines from 1 January 1967; see NOTE on page 147. (d) Interstate and overseas. (e) Census figure.

The following table shows the estimated population of each State and Territory of Australia at 31 December of the years 1965 to 1969. The estimates refer to *total* population (see letterpress preceding previous table).

POPULATION ESTIMATES (a)—STATES AND TERRITORIES

State or Territory	Estimated population at 31 December—				
	1965	1966	1967	1968	1969
New South Wales	4,211,049	4,273,307	4,346,815	4,428,760	4,529,918
Victoria	3,195,860	3,249,870	3,303,257	3,355,761	3,420,142
Queensland	1,659,423	1,687,882	1,718,266	1,751,828	1,785,394
South Australia	1,082,958	1,104,590	1,118,477	1,136,387	1,155,303
Western Australia	838,248	862,685	892,763	930,758	966,740
Tasmania	369,608	373,905	379,628	386,031	391,151
Northern Territory	55,464	58,099	61,507	66,555	69,657
Australian Capital Territory	92,798	100,049	108,176	117,221	127,722
AUSTRALIA	11,505,408	11,710,387	11,928,889	12,173,301	12,446,027

(a) Including Aborigines.

The following table shows the estimated population of Western Australia at ten-yearly intervals from 1830 to 1960, and annually from 1965 to 1969. The estimates for 1960 and earlier exclude full-blood Aborigines. The figures shown for 1965 and later refer to *total* population, *i.e.* including Aborigines; see letterpress *Population Estimates* on previous page.

ESTIMATED POPULATION (a)—1830-1969

At 31 December—	Males	Females	Persons	Increase (b)		
				Number	Per cent	Average annual rate (per cent)
1830	877	295	1,172	....	....	....
1840	1,434	877	2,311	1,139	97.18	7.03
1850	3,576	2,310	5,886	3,575	154.69	9.80
1860	9,597	5,749	15,346	9,460	160.72	10.06
1870	15,511	9,624	25,135	9,789	63.79	5.06
1880	16,985	12,576	29,561	4,426	17.61	1.64
1890	28,854	19,648	48,502	18,941	64.07	5.08
1900	110,088	69,879	179,967	131,465	271.05	14.01
1910	157,971	118,861	276,832	96,865	53.82	4.40
1920	176,895	154,428	331,323	54,491	19.68	1.81
1930	232,868	198,742	431,610	100,287	30.27	2.68
1940	248,734	225,342	474,076	42,466	9.84	0.94
1950	294,758	277,891	572,649	98,573	20.79	1.91
1960	372,665	358,368	731,033	158,384	27.66	2.47
1965	427,330	410,918	838,248	20,127	2.46	....
1966	439,680	423,005	862,685	24,437	2.92	....
1967	454,743	438,020	892,763	30,078	3.49	....
1968	473,779	456,979	930,758	37,995	4.26	....
1969	491,737	475,003	966,740	35,982	3.87	....
Five years ended 31 December 1969				148,619	18.17	3.39

(a) Estimates for 1960 and earlier exclude full-blood Aborigines; those for 1964 and later refer to *total* population, *i.e.* including Aborigines. (b) Decennial increases during the period 1830-1960; annual increases from 1965 to 1969.

**Local Government Areas.** The following table shows the area and estimated population of each local government area in Western Australia at 30 June 1969, together with the population enumerated at the Census of 30 June 1966. The figures refer to *total* population, *i.e.* including Aborigines.

Cities are marked (C) and Towns (T), all other local government areas listed being Shires. The names and designations shown are those which were current at 30 June 1969. For changes which have occurred since that date the reader is referred to the section *Local Government Districts* which appears in the *Appendix* under the heading Chapter III—*Constitution and Government*.

## POPULATION IN LOCAL GOVERNMENT AREAS

Local government area	Population		Area (square miles)	Local government area	Population		Area (square miles)
	Census, 30 June 1966	At 30 June 1969 (estimated)			Census, 30 June 1966	At 30 June 1969 (estimated)	
Albany (T) ....	11,440	12,300	13.3	Mandurah ....	3,008	3,600	55
Albany ....	3,247	3,550	1,708	Manjimup ....	9,168	9,100	2,662
Armadale-Kelmscott ....	7,840	11,300	275.5	Marble Bar ....	1,001	1,200	46,223
Ashburton ....	908	1,000	24,264	Meekatharra ....	1,190	1,200	39,348
Augusta-Margaret River	3,238	3,050	915	Melville (C) ....	47,901	52,300	20.6
Balingup ....	1,196	1,100	280	Menzies ....	460	400	57,500
Bassendean ....	9,753	10,600	3.9	Merredin ....	5,386	5,500	1,302
Bayswater ....	26,125	31,500	10.7	Midland (T) ....	9,346	9,700	2.5
Belmont ....	27,005	31,300	15.4	Mingenew ....	1,009	1,000	774
Beverley ....	1,780	1,750	892	Moora ....	3,144	3,100	1,464
Boddington ....	773	700	737	Morawa ....	1,726	1,900	1,314
Boulder (T) ....	5,242	5,450	4.5	Mosman Park (T) ....	5,793	6,200	1.7
Boypup Brook ....	2,237	2,150	1,095	Mount Magnet ....	1,061	1,000	5,358
Bridgetown ....	2,802	2,750	450	Mount Marshall ....	1,314	1,500	3,913
Brookton ....	1,361	1,350	464	Mukinbudin ....	877	900	1,318
Broome ....	2,813	3,050	20,740	Mullewa ....	1,869	2,050	4,205
Broomehill ....	745	800	452	Mundaring ....	8,941	10,200	247.3
Bruce Rock ....	2,155	2,050	1,051	Murchison ....	387	400	16,347
Bunbury (T) ....	15,467	16,900	20.2	Murray ....	3,357	3,400	714
Busselton ....	6,833	7,400	507	Nannup ....	1,272	1,150	1,140
Canning ....	23,612	30,500	24.9	Narembeen ....	1,590	1,550	1,475
Capel ....	2,132	2,250	215	Narrogin (T) ....	4,878	5,000	4.3
Carnamah ....	1,013	1,050	1,094	Narrogin ....	1,010	1,000	625
Carnarvon ....	4,949	5,750	20,602	Nedlands (C) ....	23,337	23,100	7.9
Chapman Valley ....	806	800	1,472	Northam (T) ....	7,413	7,650	9.0
Chittering ....	1,075	1,100	469	Northam ....	2,694	2,600	548
Claremont (T) ....	8,939	9,000	1.9	Northampton ....	2,034	2,150	7,097
Cockburn ....	13,848	20,100	53.2	Nullagine ....	586	1,850	92,568
Collie ....	8,586	8,500	374	Nungarin ....	539	500	442
Coolgardie ....	832	3,700	11,753	Nyabing-Pingrup ....	1,067	1,100	2,530
Coorow ....	817	900	1,597	Peppermint Grove ....	1,601	1,500	0.4
Corrigin ....	2,099	2,100	1,195	Perenjori ....	1,312	1,350	2,953
Cottesloe (T) ....	8,131	7,900	1.5	Perth (C) ....	96,322	97,000	24.4
Cranbrook ....	1,463	1,400	1,310	Perth ....	114,443	135,000	44.4
Cuballing ....	732	750	483	Pingelly ....	1,539	1,500	476
Cue ....	509	600	5,296	Plantagenet ....	4,702	4,700	1,864
Cunderdin ....	2,122	2,050	723	Port Hedland ....	3,287	5,600	9,348
Dalwallinu ....	2,447	2,550	2,775	Quairading ....	1,745	1,700	655
Dandaragan ....	630	900	2,606	Ravensthorpe ....	782	1,000	4,970
Dardanup ....	1,672	1,900	207	Rockingham ....	4,383	9,000	100.9
Denmark ....	1,775	1,750	711	Roebourne ....	2,144	4,500	8,452
Donnybrook ....	2,138	2,100	314	Sandstone ....	150	150	10,862
Dowerin ....	1,306	1,250	841	Serpentine-Jarrahdale	1,747	1,700	287.6
Dumbleyung ....	1,459	1,450	985	Shark Bay ....	479	600	8,009
Dundas ....	2,892	2,600	41,509	South Perth (C) ....	32,047	32,500	7.7
East Fremantle (T) ....	6,908	7,300	1.2	Subiaco (C) ....	16,629	17,500	2.7
Esperance ....	4,891	6,200	10,979	Swan-Guildford ....	9,904	11,250	396.3
Exmouth ....	2,248	2,500	792	Tableland ....	1,889	3,200	14,871
Fremantle (C) ....	25,309	26,000	6.9	Tambellup ....	955	950	554
Geraldton (T) ....	12,196	14,100	10.9	Tammin ....	828	800	420
Gingin ....	1,032	1,200	1,244	Three Springs ....	1,046	1,050	1,015
Gnowangerup ....	3,859	4,150	4,349	Toodyay ....	1,388	1,350	650
Goomalling ....	1,567	1,600	712	Trayning ....	980	1,000	630
Gosnells ....	11,382	16,700	48.3	Upper Gascoyne ....	462	400	22,064
Greenbushes ....	680	650	73	Victoria Plains ....	1,903	1,800	990
Greenough ....	1,612	1,600	675	Wagin ....	2,780	2,900	750
Halls Creek ....	1,793	2,000	55,177	Wandering ....	637	600	755
Harvey ....	6,594	6,600	949	Wanneroo ....	2,440	3,450	303.9
Irwin ....	810	850	858	Waroona ....	1,830	1,800	323
Kalamunda ....	9,816	14,400	135.4	West Arthur ....	1,430	1,400	1,092
Kalgoorlie (T) ....	9,203	9,700	2.1	West Kimberley ....	4,765	5,100	39,655
Kalgoorlie ....	6,941	7,200	27,509	Westonia ....	612	500	1,261
Katanning ....	4,580	4,700	588	Wickepin ....	1,394	1,400	768
Kellerberrin ....	2,395	2,350	716	Williams ....	1,200	1,200	886
Kojonup ....	2,724	2,700	1,134	Wiluna ....	453	450	127,909
Kondinin ....	1,262	1,300	2,834	Wongan-Ballidu ....	2,336	2,400	1,307
Koorda ....	1,080	1,100	1,092	Woodanilling ....	594	600	435
Kulin ....	1,393	1,450	1,850	Wyalkatchem ....	1,256	1,250	504
Kwinana ....	5,796	8,500	45.6	Wyndham-East Kimberley	3,329	4,200	46,791
Lake Grace ....	1,988	2,150	3,572	Yalgoo ....	470	450	12,891
Laverton ....	984	1,000	70,733	Yilgarn ....	2,453	2,450	11,797
Leonora ....	782	700	12,256	York ....	2,288	2,200	776
				WESTERN AUSTRALIA			
				(a)848,100		(a)946,394	975,920

(a) Includes migratory population.

## OVERSEAS ARRIVALS AND DEPARTURES

In the tables in this section the term 'overseas arrivals' refers to persons arriving in Western Australia direct from an overseas country, and 'overseas departures' to persons departing from Western Australia direct to an overseas destination.

The statistics exclude passengers passing through Australia on board the same ship or on the same flight (variously called 'direct transit' passengers or 'through' passengers), passengers on short pleasure cruises commencing and finishing in Australia on ships not then engaged in regular voyages, and all air crew and ships' crew.

The classification into 'permanent', 'long-term' and 'short-term' movement is based on information provided by the traveller on arrival in or departure from Australia. *These statements represent the traveller's intention at the time. Many travellers subsequently change their intentions and this must be borne in mind in interpreting the statistics.*

*Permanent movement* consists of persons arriving with the stated intention of settling permanently in Australia, and Australian residents departing with the stated intention of residing permanently abroad. *Settlers* are persons who, on arrival in Australia, indicated that they came intending to settle. *Former settlers* are persons who, on departure from Australia, stated that they had come to Australia intending to settle, had stayed for a period of twelve months or more, and were now departing permanently.

*Long-term movement* consists of the arrival of visitors and the departure of residents with the stated intention of staying (in Australia or in a country abroad, respectively) for twelve months or more, and the departure of visitors and the return of Australian residents who have stayed (in Australia or in a country abroad, respectively) for twelve months or more.

*Short-term movement* consists of all other arrivals and departures, including those of Australian troops irrespective of period of stay.

## OVERSEAS ARRIVALS AND DEPARTURES—TYPE OF MOVEMENT

Period	Permanent and long-term movement		Short-term movement				Total				
			Australian residents		Visitors						
	Males	Females	Males	Females	Males	Females	Males	Females	Persons		
ARRIVALS											
1965	....	....	7,673	7,314	5,343	4,912	3,913	2,580	16,929	14,806	31,735
1966	....	....	10,636	9,662	6,191	5,356	4,762	2,958	21,589	17,976	39,565
1967	....	....	12,105	10,860	7,526	6,599	6,147	4,299	25,778	21,758	47,536
1968	....	....	14,749	13,105	8,102	7,450	7,853	5,101	30,704	25,656	56,360
1969	....	....	14,729	12,731	9,828	8,902	8,087	5,459	32,644	27,092	59,736
DEPARTURES											
1965	....	....	2,703	2,687	5,211	4,762	4,277	2,658	12,191	10,107	22,298
1966	....	....	3,404	3,206	6,038	5,358	5,546	3,224	14,988	11,788	26,776
1967	....	....	3,855	3,672	6,939	6,478	7,231	4,522	18,025	14,672	32,697
1968	....	....	4,788	4,443	8,816	7,957	8,918	5,291	22,522	17,691	40,213
1969	....	....	5,515	4,964	10,888	9,400	9,668	5,953	26,071	20,317	46,388

## OVERSEAS ARRIVALS AND DEPARTURES—PERMANENT MOVEMENT

Particulars	1965	1966	1967	1968	1969
Arrivals—					
Assisted settlers	8,531	12,851	13,716	16,912	16,551
Other settlers	3,081	3,843	4,663	6,626	6,346
Total	11,612	16,694	18,379	23,538	22,897
Departures—					
Former settlers	1,270	1,593	1,872	2,862	3,440
Other residents	1,581	2,020	2,309	504	660
Total	2,851	3,613	4,181	3,366	4,100

**Nationality.** The following table gives a summary of permanent and long-term movements classified according to the nationality of persons at the time of arrival or departure. Where fifty or more persons of a particular nationality (or country of citizenship) arrived in Western Australia in 1969, each such nationality (or country) is shown separately, all others being classified to the item *Other and not stated*.

OVERSEAS ARRIVALS AND DEPARTURES—PERMANENT AND LONG-TERM MOVEMENT  
CLASSIFIED ACCORDING TO NATIONALITY

Nationality	1967			1968			1969		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
ARRIVALS									
British—									
Country of citizenship—									
Australia .....	908	1,089	1,997	983	1,189	2,172	979	1,178	2,157
Canada .....	28	18	46	46	43	89	48	26	74
Ceylon .....	33	28	61	53	51	104	35	32	67
India .....	281	246	527	484	471	955	593	568	1,161
Ireland .....	138	96	234	181	116	297	222	133	355
Malaysia .....	200	124	324	250	171	421	221	178	399
New Zealand .....	158	104	262	532	387	919	450	309	759
Singapore .....	57	45	102	73	60	133	106	90	196
South Africa .....	49	53	102	73	64	137	83	92	175
United Kingdom (a) .....	8,121	7,370	15,491	9,652	8,676	18,328	9,003	7,970	16,973
Other and not stated .....	214	192	406	294	273	567	290	292	582
<b>Total, British .....</b>	<b>10,187</b>	<b>9,365</b>	<b>19,552</b>	<b>12,621</b>	<b>11,501</b>	<b>24,122</b>	<b>12,030</b>	<b>10,868</b>	<b>22,898</b>
American (U.S.) .....	127	83	210	143	117	260	227	96	323
Burmese .....	141	125	266	138	108	246	250	225	475
Czechoslovak .....	1	2	3	4	2	6	33	17	50
Danish .....	43	30	73	52	29	81	79	59	138
Dutch .....	147	142	289	180	158	338	267	232	499
Finnish .....	2	2	4	14	15	29	69	47	116
French .....	15	19	34	29	23	52	63	61	124
German .....	107	94	201	97	96	193	113	67	180
Greek .....	103	77	180	109	76	185	106	73	179
Italian .....	730	545	1,275	759	546	1,305	623	437	1,060
Portuguese .....	98	82	180	65	63	128	113	76	189
Yugoslav .....	200	110	310	267	160	427	408	235	643
Other and not stated .....	204	184	388	271	211	482	348	238	586
<b>TOTAL .....</b>	<b>12,105</b>	<b>10,860</b>	<b>22,965</b>	<b>14,749</b>	<b>13,105</b>	<b>27,854</b>	<b>14,729</b>	<b>12,731</b>	<b>27,460</b>
DEPARTURES									
British—									
Country of citizenship—									
Australia .....	1,304	1,606	2,910	1,474	1,731	3,205	1,640	1,969	3,609
Canada .....	47	30	77	48	20	68	83	59	142
Ceylon .....	27	14	41	14	17	31	7	2	9
India .....	34	24	58	60	47	107	66	42	108
Ireland .....	99	51	150	100	44	144	68	56	124
Malaysia .....	42	36	78	50	30	80	102	68	170
New Zealand .....	32	12	44	24	9	33	22	11	33
Singapore .....	17	17	34	15	19	34	21	25	46
United Kingdom (a) .....	1,193	1,152	2,345	1,761	1,644	3,405	2,155	1,893	4,048
Other and not stated .....	305	276	581	307	323	630	260	276	536
<b>Total, British .....</b>	<b>3,100</b>	<b>3,218</b>	<b>6,318</b>	<b>3,853</b>	<b>3,884</b>	<b>7,737</b>	<b>4,450</b>	<b>4,418</b>	<b>8,868</b>
American (U.S.) .....	174	140	314	169	101	270	282	140	422
Burmese .....	1	1	2	2	7	9	2	3	5
Czechoslovak .....	9	2	11	13	5	18	31	9	40
Danish .....	69	66	135	98	78	176	112	91	203
Dutch .....	1	2	3	3	1	4	4	1	5
Finnish .....	8	4	12	25	21	46	13	13	26
French .....	89	46	135	99	60	159	88	36	124
German .....	25	12	37	48	29	77	41	21	62
Greek .....	153	103	256	195	133	328	199	108	307
Portuguese .....	22	19	41	13	2	15	7	1	8
Yugoslav .....	73	60	133	92	21	113	88	17	105
Other and not stated .....	131	191	322	178	101	279	196	106	302
<b>TOTAL .....</b>	<b>3,855</b>	<b>3,672</b>	<b>7,527</b>	<b>4,788</b>	<b>4,443</b>	<b>9,231</b>	<b>5,515</b>	<b>4,964</b>	<b>10,479</b>

(a) Includes citizens of British colonies.



## Chapter IV—continued

### Part 2—Births, Deaths and Marriages

*NOTE. Reference is made on page 126 to the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution. As a consequence of this repeal, all vital statistics, which previously excluded births, deaths and marriages of full-blood Aborigines, now include events among the total population. These new statistics were first compiled in respect of the March quarter of 1967. Accordingly, all figures shown in this Part for 1967 and later include particulars of Aborigines, those for 1966 and earlier periods remaining on the old basis.*

*A line drawn across a column in the tables indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to events among the total population, i.e. including Aborigines.*

#### THE REGISTRATION SYSTEM

Compulsory registration of births, deaths and marriages in Western Australia was originally provided for by legislation of the year 1841. The Statutes currently in force are the *Registration of Births, Deaths and Marriages Act, 1961-1965* (State) and the *Marriage Act 1961-1966* (Commonwealth). For administrative purposes, the State is divided into twenty-seven Registry Districts, each having a District Registrar. Particulars of births, deaths and marriages reported to the District Registrars are sent to the Registrar-General at Perth, where a central registry office has been maintained since 1841. Local registers are kept at each district office.

Births are required to be registered within sixty days of the event, and must be notified by the father, the mother or the occupier of the premises where the birth took place. Special provisions and penalties apply to notification and registration after the expiration of the sixty-day period.

A stillbirth is required to be registered both as a birth and a death. From 1 January 1968 the term 'stillbirth', for registration purposes, refers to a child of at least twenty weeks' gestation not born alive. Previously it was restricted to cases where the gestation period was at least twenty-eight weeks.

Deaths are required to be registered within fourteen days. Notification must be given by the person who disposes of the body or by the occupier of the premises where the death occurred. As in the case of births, special provisions and penalties exist for the late registration of a death.

Marriages are celebrated according to the provisions of the *Marriage Act 1961-1966* (Commonwealth) by ministers of religion registered under the Act, or by District Registrars. Ministers are required to lodge a marriage certificate with the District Registrar for registration within fourteen days of the celebration of a marriage. A penalty fee is provided for registrations after fourteen days from the date of marriage.

Statistics of births, deaths and marriages are prepared from the registration documents.

The following table shows, for the years 1967, 1968 and 1969, the number of births, deaths and marriages registered in Western Australia, classified according to Statistical Divisions. The figures do not necessarily represent the number of such events which actually occurred in a particular Statistical Division during each year, since births are allocated to the usual place of residence of the mother, deaths to the usual place of residence of the deceased, and marriages to the usual place of residence of the bridegroom. Further, the statistics are compiled according to date of registration and not date of occurrence.

**BIRTHS, DEATHS AND MARRIAGES**  
**NUMBERS REGISTERED—STATISTICAL DIVISIONS (a) (b) (c)**

Statistical Division (a)	Births (d)			Deaths (e)			Marriages		
	1967	1968	1969	1967	1968	1969	1967	1968	1969
Perth Statistical Division ....	10,952	12,018	13,094	4,855	5,264	5,185	5,218	5,590	6,441
Other Divisions—									
South-West .....	1,583	1,580	1,522	523	571	564	561	636	568
Southern Agricultural .....	1,082	1,161	1,161	305	366	339	360	398	380
Central Agricultural .....	1,476	1,470	1,494	327	336	335	462	482	509
Northern Agricultural .....	1,053	1,167	1,192	226	254	229	335	374	395
Eastern Goldfields .....	912	1,014	1,085	267	344	319	288	359	376
Central .....	144	163	158	44	53	59	30	31	28
North-West .....	229	264	271	56	48	52	62	67	80
Pilbara .....	198	292	377	44	89	87	47	88	127
Kimberley .....	394	412	400	132	143	181	67	61	89
Total .....	7,071	7,523	7,660	1,924	2,204	2,165	2,212	2,496	2,552
WESTERN AUSTRALIA ....	18,023	19,541	20,754	6,779	7,468	7,350	7,430	8,086	8,993

(a) For component local government areas, see map at back of Year Book. (b) See letterpress immediately preceding table.  
(c) See NOTE at top of previous page. (d) Live births. (e) Stillbirths are not included; see next table.

### BIRTHS

Statistics of births in each of the five years 1965 to 1969 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole are shown in the following table.

#### BIRTHS REGISTERED (a)

Year	Live births					Stillbirths (d)
	Males (b)	Females (b)	Persons (b)	Ex-nuptial births (c)	Multiple births (c)	

#### PERTH STATISTICAL DIVISION

1965 ....	5,035	4,866	9,901	764	(e) 192	110
1966 ....	5,383	5,080	10,463	867	207	113
1967 ....	5,681	5,271	10,952	917	242	118
1968 ....	*6,190	*5,828	12,018	990	(e) 235	155
1969 ....	6,697	6,397	13,094	1,159	253	165

#### OTHER DIVISIONS

1965 ....	3,245	3,040	6,285	675	149	71
1966 ....	3,417	3,127	6,544	740	132	55
1967 ....	3,641	3,430	7,071	1,027	(f) 155	70
1968 ....	*3,880	*3,643	7,523	1,024	(e) 169	88
1969 ....	3,898	3,762	7,660	1,072	(e) 152	85

#### WESTERN AUSTRALIA

1965 ....	8,280	7,906	16,186	1,439	(e) 341	181
1966 ....	8,800	8,207	17,007	1,607	339	168
1967 ....	9,322	8,701	18,023	1,944	(f) 397	188
1968 ....	10,070	9,471	19,541	2,014	(f) 404	243
1969 ....	10,595	10,159	20,754	2,231	(e) 405	250

(a) See NOTE on previous page. (b) Includes ex-nuptial births and multiple births.  
(c) Figures represent the number of children live-born. (d) Figures for 1968 and 1969 refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 and earlier refer to cases where the gestation period was at least 28 weeks.  
(e) Includes one case of triplets. (f) Includes two cases of triplets.  
\* Revised.

The following table shows the number of nuptial confinements during 1969, classified according to age group of mother and number of previous issue.

NUPTIAL CONFINEMENTS—AGE OF MOTHER AND PREVIOUS ISSUE, 1969 (a)

Previous issue (number)	Age of mother (years)							Total married mothers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent
0	1,394	3,349	1,506	352	122	38	....	6,761	36.86
1	270	2,398	1,979	508	123	23	2	5,303	28.91
2	28	702	1,535	773	205	36	....	3,279	17.88
3	1	156	634	570	236	56	3	1,656	9.03
4	1	26	187	268	142	45	4	673	3.67
5	....	14	73	100	106	39	....	332	1.81
6	....	1	20	55	49	16	1	142	0.77
7	....	....	8	23	36	20	2	89	0.49
8	....	....	3	17	23	10	1	54	0.29
9	....	....	....	6	10	6	3	25	0.14
10 or more	....	....	....	3	14	8	3	28	0.15
Total married mothers ....	1,694	6,646	5,945	2,675	1,066	297	19	18,342	100.00

(a) See NOTE on page 147.

The following table shows the number of nuptial confinements during 1969, classified according to the relative ages of parents.

NUPTIAL CONFINEMENTS—RELATIVE AGES OF PARENTS, 1969 (a)

Age of father (years)	Age of mother (years)							Total fathers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent
Under 20	300	40	....	....	....	....	....	340	1.85
20-24	1,131	2,702	221	13	....	....	....	4,067	22.17
25-29	222	3,102	2,873	231	12	3	....	6,443	35.13
30-34	31	655	2,174	1,206	104	6	....	4,176	22.77
35-39	8	103	526	865	474	31	2	2,009	10.95
40-44	....	30	108	289	348	138	3	916	4.99
45-49	1	7	29	56	94	83	9	279	1.52
50 and over	1	7	14	15	34	36	5	112	0.61
Not stated	....	....	....	....	....	....	....	....	....
Total married mothers— Number ....	1,694	6,646	5,945	2,675	1,066	297	19	18,342	....
Per cent ....	9.24	36.23	32.41	14.58	5.81	1.62	0.10	....	100.00

(a) See NOTE on page 147.

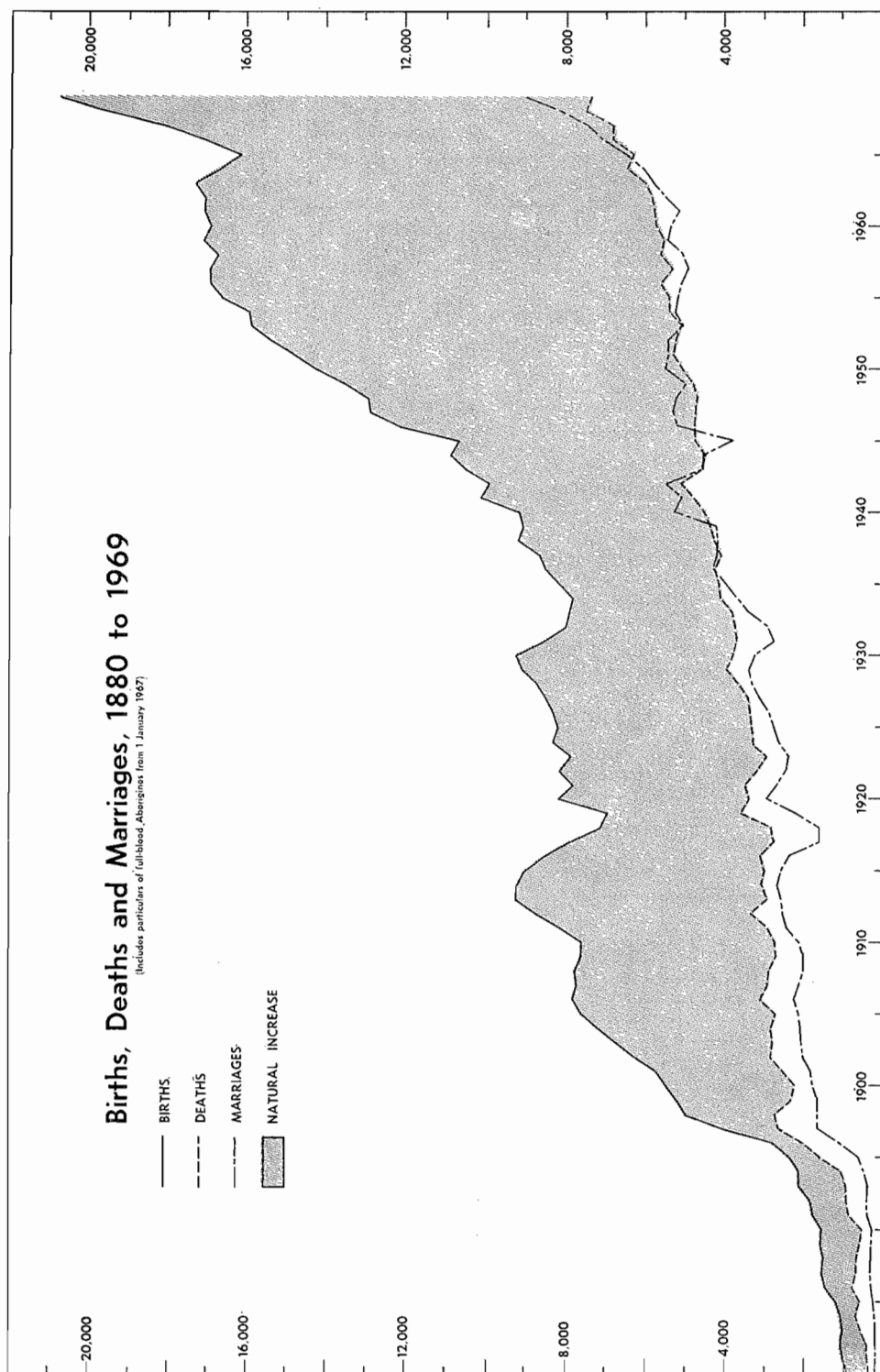
The ages of mothers of ex-nuptial children born during each of the years 1965 to 1969 are shown in the following table.

EX-NUPTIAL BIRTHS—AGE OF MOTHER (a)

Age of mother (years)		1965	1966	1967	1968	1969
Under 14	....	2	2	5	5	4
14	....	7	11	7	15	11
15	....	30	34	44	49	34
16	....	87	102	117	103	123
17	....	131	141	177	173	197
18	....	147	170	221	197	217
19	....	129	157	194	215	192
20	....	114	126	170	144	205
21-24	....	296	348	383	446	552
25-29	....	218	228	291	319	313
30-34	....	147	140	161	178	207
35-39	....	95	95	117	115	115
40-44	....	34	41	40	45	41
45 and over	....	*1	*5	*8	*3	8
Not stated	....	1	7	9	7	12
Total, ex-nuptial births	....	1,439	1,607	1,944	2,014	2,231

(a) See NOTE on page 147.

\* Revised.



**Crude Birth Rates.** The crude birth rate in any period may be defined as the number of live births occurring during the period for every thousand of the mean population.

The average annual rates for each five-year period in the fifty years from 1916 to 1965 and the rates for single years from 1960 to 1969, for Western Australia and Australia as a whole, are shown in the following table.

CRUDE BIRTH RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (b)		Year	Annual rate (b)	
	Western Australia	Australia		Western Australia	Australia
1916-20 .....	24.49	25.35	1960 .....	23.41	22.42
1921-25 .....	22.85	23.86	1961 .....	23.15	22.85
1926-30 .....	21.54	20.98	1962 .....	22.58	22.15
1931-35 .....	18.36	16.94	1963 .....	22.23	21.61
1936-40 .....	19.16	17.52	1964 .....	20.93	20.60
1941-45 .....	21.72	20.28	1965 .....	19.85	19.65
1946-50 .....	25.24	23.39	1966 .....	20.31	19.27
1951-55 .....	25.37	22.86			
1956-60 .....	24.20	22.59	1967 .....	20.55	19.40
1961-65 .....	21.71	21.34	1968 .....	21.47	20.00
			1969 .....	21.91	20.33

(a) See NOTE on page 147. (b) Rates for the years 1961 to 1965 have been revised in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census.

In each year of the period under review, Western Australia's crude birth rate has been higher than that of the Commonwealth with the exception of the latter part of the first World War and during the early 1920s.

In Western Australia, the rate showed a marked and almost continuous decrease from the beginning of the century to the depression of thirty years later when the unprecedentedly low rate of 17.64 was recorded in 1934 (see Graph—*Rates of Birth, Death and Marriage*). In the years since then a fairly well-sustained improvement was evident until 1952 when the rate reached 25.66, its highest level since 1917. Since 1952 there has been a decline and in 1965 the rate was 19.85, the lowest since 1942. In 1969 the rate increased to 21.91, the highest recorded since 1963.

**Age-specific Birth Rates.** As a measure of fertility, the crude birth rate has the advantage of simplicity in calculation. The data necessary for its computation are usually readily available from published statistics, and it is therefore useful in comparing the fertility of the populations of States and countries for which no additional data are available. However, it is of limited use, since it does not take into account the important factors of age and sex composition of the population. Age-specific birth rates, which do have regard to these factors, therefore provide a better measure of fertility. Age-specific birth rates represent the number of births to women of specified ages per thousand women of those particular ages, and thus take cognisance of the variations in fertility experienced by women at the successive stages of their child-bearing life.

AGE-SPECIFIC BIRTH RATES (a) (b)—WESTERN AUSTRALIA

Year	Age group (years)						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
1947 .....	32.63	187.14	206.24	146.72	84.97	28.63	2.06
1954 .....	42.74	231.09	217.77	135.74	71.71	23.61	1.52
1961 .....	47.07	246.94	231.92	127.38	61.82	20.55	1.17
1966 .....	53.77	204.07	198.03	102.09	45.68	12.98	1.13
1967 .....	55.71	195.77	192.96	103.03	44.02	12.85	1.29
1968 .....	55.50	196.39	199.15	102.61	42.74	12.42	1.30
1969 .....	55.26	189.25	199.94	102.15	44.28	12.45	1.52

(a) Number of live births registered per 1,000 women in each age group. Rates for the years 1947 to 1966 are based on Census results. Those for 1967 and later are based on estimates of the age distribution of the female population at 30 June of each year and are subject to revision after the 1971 Census. (b) See NOTE on page 147.

For purposes of comparison with Western Australian experience, age specific birth rates for Australia as a whole are given in the following table.

AGE-SPECIFIC BIRTH RATES (a) (b)—AUSTRALIA

Year	Age group (years)						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
1947 ....	32.06	166.18	186.60	129.99	75.02	23.52	1.81
1954 ....	39.19	197.13	194.02	121.76	64.43	20.16	1.47
1961 ....	47.35	225.81	221.21	131.11	63.38	19.17	1.41
1966 ....	48.89	173.07	183.88	105.12	50.62	14.16	1.04
1967 ....	48.37	170.76	184.97	102.77	47.85	13.49	1.16
1968 ....	48.88	173.64	190.80	103.30	46.74	12.89	1.12
1969 ....	48.98	174.15	191.60	103.51	45.56	12.16	1.11

(a) Number of live births registered per 1,000 women in each age group. Rates for the years 1947 to 1966 are based on Census results. Those for 1967 and later are based on estimates of the age distribution of the female population at 30 June of each year and are subject to revision after the 1971 Census. (b) See NOTE on page 147.

**Gross and Net Reproduction Rates.** The gross reproduction rate is derived from fertility rates representing the number of *female* births to women of specified ages per thousand women of those particular ages. It provides a measure of the number of female children who would be born, on the average, to every woman assuming that she lives through the whole of the child-bearing period and that the basic fertility rates remain unaltered throughout.

The gross reproduction rate assumes that all females survive to the end of their child-bearing capacity. A more accurate measure, which takes into account the effect of mortality among women during this period is the net reproduction rate. This rate represents the average number of female children who would be born to women during their lifetime if they were subject in each succeeding year of life to the fertility and mortality rates on which the calculation is based. The net reproduction rate is a measure of the number of women who, in the next generation, will replace the women of reproductive age in the current generation. It provides a useful indication of likely future population trends. A rate remaining stationary at unity indicates an ultimately static population. If a rate greater than unity is maintained, an ultimate increase of population will result, while a continuing rate less than unity will lead to an ultimate decline.

GROSS AND NET REPRODUCTION RATES (a) (b)  
WESTERN AUSTRALIA AND AUSTRALIA

Year	Gross reproduction rate		Net reproduction rate	
	Western Australia	Australia	Western Australia	Australia
1947 ....	1.683	1.494	(c) 1.595	(c) 1.416
1954 ....	1.772	1.559	(d) 1.704	(d) 1.499
1961 ....	1.785	1.728	(e) 1.730	(e) 1.672
1966 ....	1.490	1.400	(e) 1.445	(e) 1.355
1967 ....	1.465	1.387	(e) 1.418	(e) 1.342
1968 ....	1.477	1.406	(e) 1.430	(e) 1.360
1969 ....	1.482	1.406	(e) 1.437	(e) 1.363

(a) Rates for the years 1947 to 1966 are based on Census results. Those for 1967 and later are based on estimates of the age distribution of the female population at 30 June of each year, and are subject to revision after the 1971 Census. (b) See NOTE on page 147. (c) Based on 1946-48 mortality experience. (d) Based on 1953-55 mortality experience. (e) Based on 1960-62 mortality experience.

## DEATHS

Statistics of deaths in each of the five years 1965 to 1969 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole appear in the following table. Infant deaths (*i.e.* those occurring in the first year of life) are also shown.

## DEATHS REGISTERED (a)

Year	Deaths (b)			Infant deaths (c)		
	Males	Females	Persons	Males	Females	Persons
PERTH STATISTICAL DIVISION						
1965 ....	2,608	1,958	4,566	97	72	169
1966 ....	2,689	2,194	4,883	99	72	171
1967 ....	2,748	2,107	4,855	84	64	148
1968 ....	2,941	2,323	5,264	115	*91	*206
1969 ....	2,936	2,249	5,185	133	107	240
OTHER DIVISIONS						
1965 ....	1,107	601	1,708	100	82	182
1966 ....	1,232	657	1,889	85	73	158
1967 ....	1,208	716	1,924	105	61	166
1968 ....	1,397	807	2,204	121	*71	*192
1969 ....	1,377	788	2,165	117	96	213
WESTERN AUSTRALIA						
1965 ....	3,715	2,559	6,274	197	154	351
1966 ....	3,921	2,851	6,772	184	145	329
1967 ....	3,956	2,823	6,779	189	125	314
1968 ....	4,338	3,130	7,468	236	162	398
1969 ....	4,313	3,037	7,350	250	203	453

(a) See NOTE on page 147. (b) Including infant deaths. (c) Deaths occurring in the first year of life. \* Revised.

**Crude Death Rates.** The crude death rate is perhaps the most common measure of mortality, and is derived by relating the deaths occurring in a period to the mean population for that period. It is usually expressed as number of deaths per thousand of mean population.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1969 are compared in the following table.

CRUDE DEATH RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (b)		Year	Annual rate (b)	
	Western Australia	Australia		Western Australia	Australia
1916-20 ....	9.93	10.78	1960	7.88	8.61
1921-25 ....	9.17	9.52	1961	7.77	8.47
1926-30 ....	8.91	9.26	1962	7.69	8.71
1931-35 ....	8.83	9.00	1963	7.68	8.70
1936-40 (c) ....	9.22	9.63	1964	8.06	9.04
1941-45 (c) ....	9.86	9.96	1965	7.70	8.79
1946-50 (c) ....	9.23	9.74	1966	8.09	8.99
1951-55 ....	8.49	9.25	1967	7.73	8.69
1956-60 ....	7.90	8.78			
1961-65 ....	7.78	8.75			
			1968	8.21	9.10
			1969	7.76	8.65

(a) See NOTE on page 147. (b) Rates for the years 1961 to 1965 have been revised in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census. (c) Excludes deaths of members of defence forces from September 1939 to June 1947.

In the early years of the century, the Western Australian rate was higher than that for Australia as a whole, but fell below the Australian average in 1909. Since that time, the rate for Western Australia has, with very few exceptions, remained lower than that for the Commonwealth.

Western Australia's crude death rate for the year 1902 was 13·79 per thousand of the mean population but by 1931 it had fallen to 8·51 (see Graph—*Rates of Birth, Death and Marriage*). After that year, the rate increased until it reached 10·65 in 1942. Since then there was a general decline until 1963 when the rate was 7·68, the lowest ever recorded in Western Australia. The rate for 1969 was 7·76 per thousand of mean population.

**Standardised Death Rates.** The crude death rate expresses simply the number of deaths occurring in a population during any period as a proportion of the mean population for that period. Although this rate is useful as a measure of the absolute level of mortality, its value is necessarily restricted when comparing the mortality in different communities in the same period, or in one community at different times.

The effect on the crude death rate of the presence in a community of a high proportion of young people or of aged people, or of a high or low masculinity, will be readily appreciated. To devise an adequate measure of comparative mortality, it is therefore necessary to select a 'standard' population to which the varying mortality experiences may be referred. A standard population compiled by the International Statistical Institute, based upon the age and sex distribution of the population of nineteen European countries at their censuses nearest to the year 1900, has been used as the basis of the standardised death rates for Western Australia and Australia given in the next paragraph. The rate is computed by applying to each sex and age group in the standard population, the death rates actually recorded in the corresponding groups of the State and Australian populations. The sum of these results represents the number of deaths which would have occurred in the standard population if it had been exposed to the same risks of mortality. The standardised death rate is derived by expressing this number in terms of 'per thousand of the standard population'.

For the Census years 1921, 1933, 1947, 1954, 1961 and 1966 the standardised death rates for Western Australia were 11·88, 8·74, 7·28, 6·71, 6·02 and 6·25, and the corresponding rates for Australia as a whole were 10·57, 8·61, 7·31, 6·87, 6·27 and 6·53. These rates have been compiled on a basis which excludes full-blood Aborigines; see *NOTE* on page 147.

**Causes of Death.** Statistics of causes of death provide important numerical facts by which to evaluate the varying health conditions and needs of different countries. In order to enable valid international comparisons, it is necessary that each country present its statistics of causes of death in a uniform manner. The first classification of causes of death to be adopted internationally was that compiled by Dr J. Bertillon at the request of the International Statistical Institute meeting in Vienna in 1891. Subsequently this classification was periodically revised by the Institute in collaboration with the League of Nations Health Organization. More recently revisions have been carried out by a Committee of the World Health Organization.

#### PRINCIPAL CAUSES OF DEATH, 1969 (a)

International number	Cause of death (b) (c)	Males	Females	Persons	Per cent of all deaths	Rate (d)
000-136	Infective and parasitic diseases—					
010-012	Tuberculosis of respiratory system ....	8	....	8	0·1	0·8
	Other infective and parasitic diseases ....	42	39	81	1·1	8·6
140-239	Neoplasms—					
140-209	Malignant—					
150-159	Digestive organs and peritoneum ....	235	170	405	5·5	42·8
162	Trachea, bronchus and lung ....	212	33	245	3·3	25·9
174	Breast ....	....	104	104	1·4	11·0
180-189	Genito-urinary organs ....	122	97	219	3·0	23·1
204-207	Leukaemia and aleukaemia ....	35	15	50	0·7	5·3
	Other malignant ....	160	98	258	3·5	27·2
210-239	Benign and unspecified ....	9	6	15	0·2	1·6
240-279	Endocrine, nutritional and metabolic diseases—					
250	Diabetes mellitus ....	50	63	113	1·5	11·9
	Other ....	14	26	40	0·5	4·2
280-289	Diseases of blood and blood-forming organs ....	9	7	16	0·2	1·7
290-315	Mental disorders ....	25	25	50	0·7	5·3



## PRINCIPAL CAUSES OF DEATH, 1969 (a)—continued

International number	Cause of death (b) (c)	Males	Females	Persons	Per cent of all deaths	Rate (d)
320-389	Diseases of the nervous system and sense organs ....	57	39	96	1.3	10.1
390-458	Diseases of the circulatory system—					
393-398	Rheumatic heart disease ....	25	44	69	0.9	7.3
410-414	Ischaemic heart disease ....	1,294	748	2,042	27.8	215.6
430-438	Cerebrovascular disease ....	349	488	837	11.4	88.4
	Other ....	273	272	545	7.4	57.5
460-519	Diseases of the respiratory system—					
480-486	Pneumonia ....	152	97	249	3.4	26.3
490-493	Bronchitis, emphysema and asthma ....	219	38	257	3.5	27.1
	Other ....	73	39	112	1.5	11.8
520-577	Diseases of the digestive system ....	94	88	182	2.5	19.2
580-629	Diseases of the genito-urinary system ....	83	59	142	1.9	15.0
630-678	Complications of pregnancy, childbirth and the puerperium ....		3	3		0.3
680-709	Diseases of the skin and subcutaneous tissue ....	1	5	6	0.1	0.6
710-738	Diseases of the musculoskeletal system and connective tissue ....	7	20	27	0.4	2.9
740-759	Congenital anomalies ....	58	57	115	1.6	12.1
760-779	Certain causes of perinatal morbidity and mortality ....	136	111	247	3.4	26.1
780-796	Ill-defined conditions ....	115	56	171	2.3	18.1
800-999	Accidents, poisonings and violence—					
810-823	Motor vehicle accidents ....	222	73	295	4.0	31.1
850-877	Accidental poisoning ....	9	7	16	0.2	1.7
880-887	Accidental falls ....	27	42	69	0.9	7.3
950-959	Suicide and self-inflicted injury ....	80	27	107	1.5	11.3
	Other ....	118	41	159	2.2	16.8
	All causes ....	4,313	3,037	7,350	100.0	776.0

(a) See NOTE on page 147. (b) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968. (c) Defined, in part, as the disease or injury which initiated the train of morbid events leading directly to death. (d) Per 100,000 of mean population; subject to revision after the 1971 Census.

The figures in the previous table have been compiled on the basis of the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision, 1965), operative from 1 January 1968. The term 'principal cause of death', as used in this table and elsewhere in this Part, means ' (a) the disease or injury which initiated the train of morbid events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury '.

The principal causes of deaths in age groups and the number and proportion (per cent) of total deaths from specified causes are shown in the following table.

## PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1969 (a)

International number	Age group and cause of death (b)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (c)
	Under 1 year ....	453	100.0	...	...
000-136	Infective and parasitic diseases ....	28	6.2	89	31.5
480-486	Pneumonia ....	54	11.9	249	21.7
740-759	Congenital anomalies ....	73	16.1	115	63.5
760-769	Maternal causes, including difficult labour ....	110	24.3	110	100.0
770	Conditions of placenta ....	31	6.8	31	100.0
776	Anoxic and hypoxic conditions n.e.c. ....	56	12.4	56	100.0
	Other causes ....	101	22.3	...	...
	1-4 years ....	79	100.0	...	...
000-136	Infective and parasitic diseases ....	13	16.5	89	14.6
140-209	Malignant neoplasms (d) ....	5	6.3	1,281	0.4
480-486	Pneumonia ....	4	5.1	249	1.6
740-759	Congenital anomalies ....	11	13.9	115	9.6
800-929	Accidents ....	30	38.0	517	5.8
	Other causes ....	16	20.3	...	...
	5-14 years ....	65	100.0	...	...
140-209	Malignant neoplasms (d) ....	10	15.4	1,281	0.8
480-486	Pneumonia ....	1	1.5	249	0.4
740-759	Congenital anomalies ....	5	7.7	115	4.3
800-929	Accidents ....	37	56.9	517	7.2
	Other causes ....	12	18.5	...	...

## PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1969 (a)—continued

International number	Age group and cause of death (b)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (c)
	15-19 years ....	83	100.0	....	....
140-209	Malignant neoplasms (d) ....	5	6.0	1,281	0.4
740-759	Congenital anomalies ....	....	....	115	....
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	47	56.6	295	15.9
950-959	Suicide ....	3	3.6	107	2.8
	Other ....	12	14.5	244	4.9
	Other causes ....	16	19.3	....	....
	20-24 years ....	110	100.0	....	....
140-209	Malignant neoplasms (d) ....	3	2.7	1,281	0.2
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	51	46.4	295	17.3
950-959	Suicide ....	3	2.7	107	2.8
	Other ....	21	19.1	244	8.6
	Other causes ....	32	29.1	....	....
	25-34 years ....	179	100.0	....	....
140-209	Malignant neoplasms (d) ....	23	12.8	1,281	1.8
390-458	Diseases of circulatory system ....	13	7.3	3,493	0.4
740-759	Congenital anomalies ....	5	2.8	115	4.3
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	39	21.8	295	13.2
950-959	Suicide ....	24	13.4	107	22.4
	Other ....	29	16.2	244	11.9
	Other causes ....	46	25.7	....	....
	35-44 years ....	272	100.0	....	....
140-209	Malignant neoplasms (d) ....	58	21.3	1,281	4.5
393-398, 402 }	Heart diseases ....	59	21.7	2,416	2.4
404, 410-429 }	Cerebrovascular diseases ....	10	3.7	837	1.2
430-438	Diseases of respiratory system ....	12	4.4	618	1.9
460-519	Accidents, poisonings, violence—				
800-999	Motor vehicle accidents ....	30	11.0	295	10.2
810-823	Suicide ....	29	10.7	107	27.1
950-959	Other ....	22	8.1	244	9.0
	Other causes ....	52	19.1	....	....
	45-54 years ....	576	100.0	....	....
140-209	Malignant neoplasms (d) ....	161	28.0	1,281	12.6
393-398, 402 }	Heart diseases ....	155	26.9	2,416	6.4
404, 410-429 }	Cerebrovascular diseases ....	39	6.8	837	4.7
430-438	Diseases of respiratory system ....	56	9.7	618	9.1
460-519	Accidents, poisonings, violence—				
800-999	Motor vehicle accidents ....	24	4.2	295	8.1
810-823	Suicide ....	23	4.0	107	21.5
950-959	Other ....	22	3.8	244	9.0
	Other causes ....	96	16.7	....	....
	55-64 years ....	1,182	100.0	....	....
140-209	Malignant neoplasms (d) ....	306	25.9	1,281	23.9
393-398, 402 }	Heart diseases ....	419	35.4	2,416	17.3
404, 410-429 }	Cerebrovascular diseases ....	106	9.0	837	12.7
430-438	Diseases of respiratory system ....	104	8.8	618	16.8
460-519	Accidents, poisonings, violence—				
800-999	Motor vehicle accidents ....	26	2.2	295	8.8
810-823	Other ....	36	3.0	351	10.3
	Other causes ....	185	15.7	....	....
	65-74 years ....	1,787	100.0	....	....
140-209	Malignant neoplasms (d) ....	364	20.4	1,281	28.4
250	Diabetes ....	37	2.1	113	32.7
393-398, 402 }	Heart diseases ....	739	41.4	2,416	30.6
404, 410-429 }	Cerebrovascular diseases ....	226	12.6	837	27.0
430-438	Diseases of respiratory system ....	155	8.7	618	25.1
460-519	Accidents, poisonings, violence—				
800-999	Motor vehicle accidents ....	29	1.6	295	9.8
810-823	Other ....	28	1.6	351	8.0
	Other causes ....	209	11.7	....	....

## PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1969 (a)—continued

International number	Age group and cause of death (b)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (c)
	75 years and over ....	2,564	100.0	....	....
140-209	Malignant neoplasms (d) ....	344	13.4	1,281	26.9
393-398, 402	Heart diseases ....	1,028	40.1	2,416	42.5
404, 410-429	Cerebrovascular diseases ....	452	17.6	837	54.0
430-438	Diseases of arteries, arterioles and capillaries ....	127	5.0	186	68.3
440-448	Diseases of respiratory system ....	206	8.0	618	33.3
460-519	Accidents, poisonings, violence—				
800-999	Accidental falls ....	47	1.8	69	68.1
880-887	Other ....	27	1.1	577	4.7
	Other causes ....	333	13.0	....	....

n.e.c. denotes 'not elsewhere classified'.

(a) See NOTE on page 147. (b) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968. (c) Deaths in the specified age group as a percentage of total deaths for a particular cause. (d) Including neoplasms of lymphatic and haematopoietic tissue.

**Infant Deaths.** The term 'infant death' refers to a death which occurs before the completion of the first year of life. In the following table, infant deaths registered in Western Australia during each of the five years to 1969 are classified according to age at death.

## INFANT MORTALITY (a)—AGES AT DEATH

Year	Days					Total under 28 days	Months			Total under 1 year		
	Under 1	1-6	7-13	14-20	21-27		Under 3	3-5	6-11			
MALES												
1965	....	....	61	50	12	7	6	136	156	19	22	197
1966	....	....	62	58	8	3	5	136	148	20	16	184
1967	....	....	83	54	6	7	5	155	172	5	12	189
1968	....	....	110	51	8	....	4	173	199	12	25	236
1969	....	....	93	68	10	8	3	182	201	17	32	250
FEMALES												
1965	....	....	60	39	3	7	1	110	116	14	24	154
1966	....	....	53	35	11	5	3	107	120	14	11	145
1967	....	....	48	23	8	2	....	81	92	17	16	125
1968	....	....	67	35	5	5	5	117	130	19	13	162
1969	....	....	76	56	3	4	1	140	152	29	22	203
PERSONS												
1965	....	....	121	89	15	14	7	246	272	33	46	351
1966	....	....	115	93	19	8	8	243	268	34	27	329
1967	....	....	131	77	14	9	5	236	264	22	28	314
1968	....	....	177	86	13	5	9	290	329	31	38	398
1969	....	....	169	124	13	12	4	322	353	46	54	453

(a) See NOTE on page 147.

**Infant Mortality Rates.** The infant mortality rate expresses the relationship between deaths of infants and the live births occurring in a period, and is stated in terms of number of deaths under one year of age per thousand live births.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1969 are shown in the following table.

**INFANT MORTALITY RATES (a)**  
**WESTERN AUSTRALIA AND AUSTRALIA**

Period	Average annual rate		Year	Annual rate	
	Western Australia (b)	Australia		Western Australia (b)	Australia
1916-20 ....	61.7	64.67	1960	21.6	20.16
1921-25 ....	59.1	57.88	1961	19.7	19.54
1926-30 ....	49.3	51.99	1962	22.3	20.41
1931-35 ....	40.8	41.27	1963	20.4	19.55
1936-40 ....	39.7	38.81	1964	19.7	19.06
1941-45 ....	33.3	34.97	1965	21.7	18.47
1946-50 ....	28.1	26.98	1966	19.3	18.17
1951-55 ....	24.4	23.34			
1956-60 ....	21.4	21.05	1967	17.4	18.26
1961-65 ....	20.7	19.42	1968	20.4	17.77
			1969	21.8	17.92

(a) See NOTE on page 147. (b) Rates for individual States are based on too few deaths to warrant calculation to the second place of decimals.

In the first decade of the century, the average annual rate (106.1) in Western Australia was considerably above the Commonwealth average of 86.83, and was the highest among the Australian States. Since then both the Western Australian and the Australian rates have shown a remarkable decrease. Despite the improvement in Western Australia, the experience of recent years generally reveals a less favourable situation than for the Commonwealth as a whole. In the five years ended 1969, Western Australia's average annual rate was 20.2 compared with the Australian rate of 18.1 and was greater than that for any other State.

**Causes of Infant Deaths.** The causes of infant deaths registered during the year 1969 are set out in the following table.

**INFANT MORTALITY—CAUSES OF DEATH, 1969 (a)**

International number	Cause of death (b)	Males	Females	Persons
740-759	Causes mainly of prenatal and natal origin—			
760-769	Congenital anomalies .....	40	33	73
762	Attributed to conditions of the mother—			
764-768	Toxaemia of pregnancy .....	7	7	14
769	Difficult labour .....	15	8	23
	Other complications of pregnancy and childbirth .....	29	28	57
770	Other .....	8	8	16
771	Conditions of placenta .....	19	12	31
774, 775	Conditions of umbilical cord .....			
776	Haemolytic disease of newborn .....	6	1	7
777	Anoxic and hypoxic conditions, n.e.c. ....	32	24	56
	Immaturity, unqualified .....	14	11	25
	Other .....	6	11	17
	Total .....	176	143	319
000-009	Causes mainly of postnatal origin—			
038	Intestinal infectious diseases .....	11	11	22
320, 036	Septicaemia .....	1		1
480-486	Meningitis and meningococcal infection .....	5	5	10
911	Pneumonia .....	31	23	54
	Inhalation or ingestion of food causing obstruction or suffocation .....		1	1
	Other .....	26	20	46
	Total .....	74	60	134
	All causes .....	250	203	453

n.e.c. denotes 'not elsewhere classified'.

(a) See NOTE on page 147. (b) Classified in accordance with the *International Statistical Classification of Diseases Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968.

**Stillbirths.** The infant mortality rate discussed above is that most commonly used, and takes no account of stillbirths. It is informative, however, to examine these two factors in relation, as in the next table.

STILLBIRTHS (a) AND INFANT DEATHS (b)

Year	Stillbirths (a)				Deaths under one year of age			
	Males	Females	Persons	Masculinity (c)	Males	Females	Persons	Masculinity (c)
1965	110	71	181	154.9	197	154	351	127.9
1966	96	72	168	133.3	184	145	329	126.9
1967	92	96	188	95.8	189	125	314	151.2
1968	115	128	243	89.8	236	162	398	145.7
1969	145	105	250	138.1	250	203	453	123.2

(a) Figures for 1968 and later refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 and earlier refer to cases where the gestation period was at least 28 weeks. (b) See NOTE on page 147. (c) Number of males to each 100 females.

The relationship between stillbirths and infant deaths during the same period is further examined in the following table, which shows the numbers of stillbirths and of infant deaths at various ages. The rates shown represent the number of stillbirths, or of infant deaths, per thousand of total births (*i.e.* including stillbirths).

STILLBIRTHS (a) AND INFANT DEATHS (b)  
NUMBERS AND RATES

Year	Stillbirths (a)	Infant deaths			Stillbirths and infant deaths (a)	
		Under 7 days	Under 28 days	Under one year		
NUMBER						
1965	....	181	210	246	351	532
1966	....	168	208	243	329	497
1967	....	188	208	236	314	502
1968	....	243	263	290	398	641
1969	....	250	293	322	453	703
RATE (c)						
1965	....	11.1	12.8	15.0	21.4	32.5
1966	....	9.8	12.1	14.1	19.2	28.9
1967	....	10.3	11.4	13.0	17.2	27.6
1968	....	12.3	13.3	14.7	20.1	*32.4
1969	....	11.9	13.9	15.3	21.6	33.5

(a) Figures for 1968 and later refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 and earlier refer to cases where the gestation period was at least 28 weeks. (b) See NOTE on page 147. (c) Rate per 1,000 of total births (*i.e.* including stillbirths); see also note (a).

\* Revised.

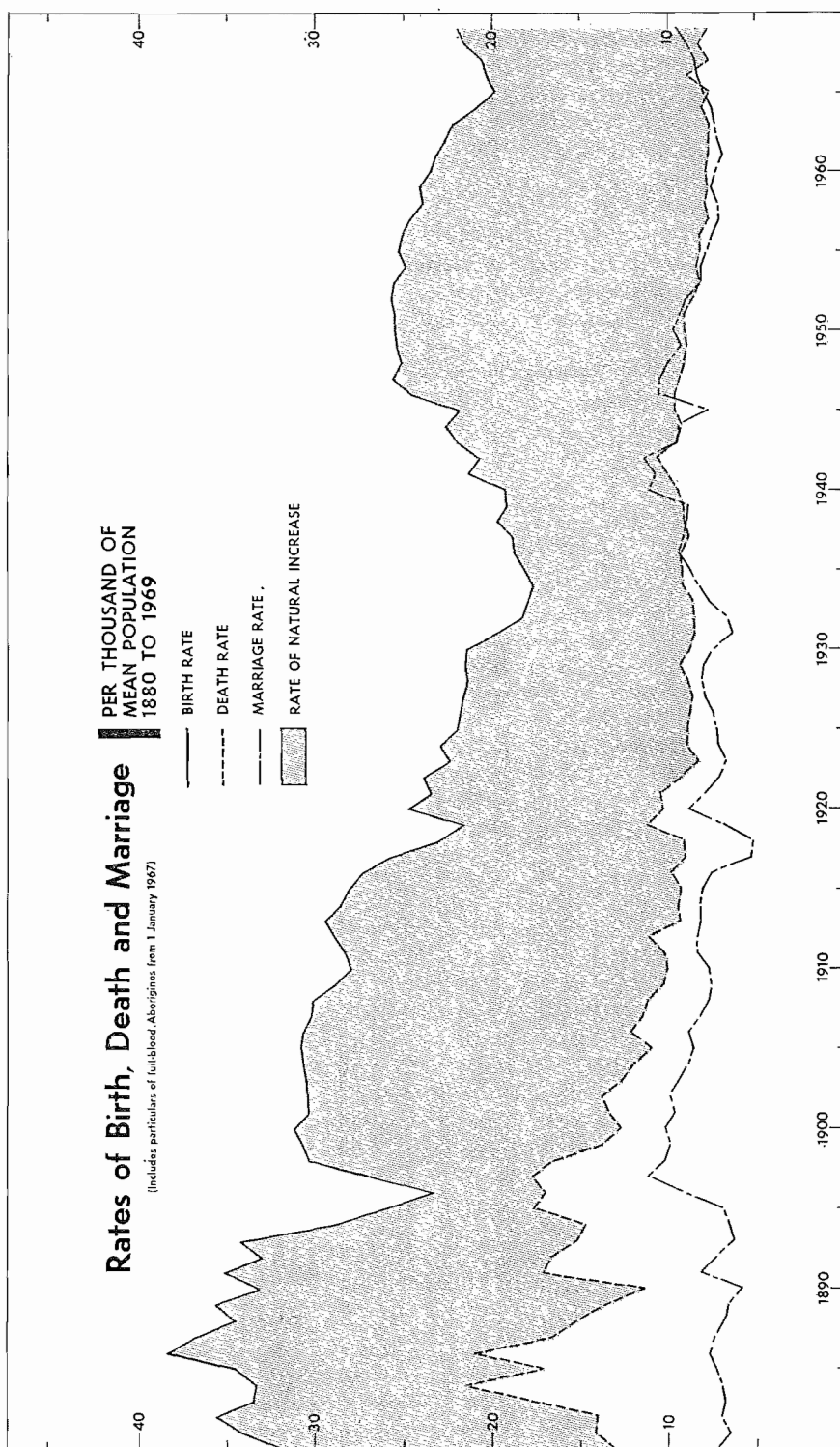
**Age-specific Death Rates.** The age-specific death rate expresses the number of deaths at specified ages in terms of the population at those particular ages. In the following table, which shows age-specific death rates for Western Australia, the average annual rates for 1965-67 and earlier periods relate to deaths in the three years surrounding a Population Census. Figures for 1968 and 1969 are based on estimates of the age distribution of the population at 30 June of those years, and are subject to revision after the 1971 Census.

## BIRTHS, DEATHS AND MARRIAGES

## AGE-SPECIFIC DEATH RATES (a)

Age group (years)	1910-12	1920-22	1932-34	1946-48	1953-55	1960-62	1965-67 (c)	1968 (b) (c)	1969 (b) (c)
MALES									
Under 1	28.4	23.9	12.8	9.3	7.0	(d) 22.9	(d) 22.1	(d) 23.4	(d) 23.6
1-4	2.6	2.2	1.6	0.9	0.7	1.2	1.2	1.2	1.2
5-9	2.2	1.4	1.4	0.6	0.5	0.5	0.5	0.7	0.4
10-14	2.9	2.4	1.8	1.5	1.6	1.2	1.2	1.5	1.3
15-19	5.2	4.0	2.5	2.2	2.0	1.7	1.6	2.1	2.0
20-24	5.9	4.1	2.9	2.0	1.9	1.5	1.5	1.9	1.6
25-29	6.8	5.4	3.1	2.3	1.8	1.6	1.8	2.3	2.3
30-34	8.4	6.4	4.0	2.5	2.2	2.1	2.3	2.1	2.7
35-39	10.4	7.9	5.7	4.2	3.2	3.5	3.4	3.2	3.6
40-44	15.0	12.1	8.8	6.3	5.8	5.0	5.3	5.2	5.5
45-49	17.7	17.2	13.5	11.5	9.0	9.5	9.2	9.7	9.9
50-54	24.7	23.8	21.4	17.2	15.8	14.8	16.1	16.6	14.4
55-59	35.1	34.2	28.3	26.3	24.8	23.8	25.4	26.4	28.0
60-64	46.0	49.5	42.4	40.3	41.5	40.3	41.4	43.1	42.7
65-69	78.7	72.2	63.4	61.0	62.9	59.6	63.6	67.6	61.0
70-74	110.5	115.6	105.1	98.7	93.8	96.7	96.4	99.2	103.1
75-79	185.2	184.5	176.8	149.5	146.9	140.9	146.5	154.4	131.4
80-84	328.2	283.5	265.0	222.4	225.7	244.5	247.4	286.0	243.4
85-89	321.4	566.7	380.8	376.2	297.4	244.5	247.4	286.0	243.4
90 and over									
FEMALES									
Under 1	21.8	18.8	8.6	7.9	5.1	(d) 19.4	(d) 17.6	(d) 17.1	(d) 20.0
1-4	2.6	1.3	1.3	0.5	0.5	1.2	0.8	1.1	1.0
5-9	1.8	1.2	1.0	0.6	0.3	0.3	0.3	0.3	0.2
10-14	2.0	1.3	1.3	0.7	0.7	0.5	0.4	0.6	0.5
15-19	3.8	3.1	1.9	1.2	0.7	0.5	0.7	0.6	0.6
20-24	4.4	4.0	2.8	1.5	0.8	0.6	0.7	0.4	0.7
25-29	4.9	4.6	3.1	1.6	1.0	0.8	0.8	1.2	0.9
30-34	6.2	4.9	4.2	2.6	1.5	1.4	1.4	1.1	1.3
35-39	6.7	6.4	5.8	3.1	2.1	2.0	2.1	2.1	1.8
40-44	8.4	8.1	6.4	5.1	3.6	3.3	3.3	3.6	3.6
45-49	11.8	10.6	9.1	6.8	5.9	5.0	5.3	4.5	5.5
50-54	14.2	12.8	10.7	10.1	8.6	7.2	7.6	8.5	7.1
55-59	20.4	17.8	17.3	16.1	13.9	11.4	12.6	12.7	12.0
60-64	34.6	30.5	29.8	24.6	20.7	19.4	20.7	21.6	22.1
65-69	54.5	54.2	44.1	40.8	39.2	35.4	34.6	38.1	35.1
70-74	92.5	96.4	74.4	74.2	67.7	60.6	57.8	64.0	59.2
75-79	144.1	137.1	121.0	117.6	109.7	101.9	100.6	100.7	95.3
80-84	186.7	219.5	192.4	187.5	189.9	191.5	182.4	218.5	168.7
85-89	359.0	478.3	397.2	273.8	285.9	191.5	182.4	218.5	168.7
90 and over									
PERSONS									
Under 1	25.2	21.4	11.4	8.6	6.1	(d) 21.2	(d) 19.9	(d) 20.4	(d) 21.8
1-4	2.6	1.8	1.4	0.7	0.6	1.2	1.0	1.1	1.1
5-9	2.0	1.3	1.2	0.6	0.4	0.4	0.4	0.5	0.3
10-14	2.5	1.9	1.5	1.1	1.2	0.8	0.8	1.0	0.9
15-19	4.6	3.5	2.2	1.7	1.4	1.2	1.2	1.4	1.4
20-24	5.3	4.0	2.8	1.7	1.4	1.1	1.1	1.2	1.2
25-29	6.0	5.0	3.1	1.9	1.4	1.2	1.3	1.8	1.7
30-34	7.5	5.7	4.1	2.5	1.8	1.8	1.9	1.6	2.0
35-39	9.1	7.2	5.2	3.7	2.7	2.8	2.8	2.7	2.8
40-44	12.7	10.4	7.7	5.7	4.8	4.2	4.3	4.4	4.6
45-49	15.6	14.6	11.5	9.2	7.6	7.4	7.3	7.1	7.7
50-54	20.9	19.6	16.6	13.8	12.3	11.4	12.1	12.7	10.8
55-59	29.3	27.9	23.4	21.4	19.3	17.8	19.3	19.9	20.3
60-64	41.2	41.7	37.0	32.6	30.9	29.1	30.8	32.4	32.6
65-69	68.7	64.3	55.3	50.8	50.4	46.5	47.2	51.4	46.8
70-74	103.3	106.7	91.1	86.6	79.8	76.3	74.1	78.6	77.0
75-79	170.1	162.6	149.7	133.2	125.9	118.0	118.3	121.0	109.0
80-84	266.7	252.0	222.9	204.1	205.8	210.7	203.8	239.4	191.1
85-89	333.3	528.3	389.2	312.3	290.4	210.7	203.8	239.4	191.1
90 and over									

(a) Rates for the three-year periods 1965-67 and earlier represent the average annual number of deaths per 1,000 of population in each age group at the relevant Census; for Census dates see table on page 126. Figures for 1968 and 1969 are based on estimates of the age distribution of the population at 30 June of those years. Rates for 1960-62 and earlier exclude full-blood Aborigines; those for 1965-67 and later refer to total population (i.e. including Aborigines). (b) Subject to revision after the 1971 Census. (c) Based on total population (i.e. including Aborigines); see note (a). See also NOTE on page 147. (d) Infant deaths per 1,000 live births registered.



**Australian Life Tables.** It has been the practice at each census from 1911 onwards to prepare Life Tables representative of the mortality experience of Australia. The mortality of the Australian population for the thirty years from 1881 to 1910 inclusive was investigated in 1911 by the Commonwealth Statistician. Tables were compiled for each State and for Australia as a whole in respect of each sex for each of the decennial periods 1881 to 1890, 1891 to 1900, and 1901 to 1910. At the Census of 1921, Life Tables were prepared by the Commonwealth Statistician from the recorded census population and the deaths in the three years 1920 to 1922. Tables based on data derived from later censuses have been compiled by the Commonwealth Actuary.

The expectation of life of males and females at various ages as revealed by these investigations is shown in the following table.

EXPECTATION OF LIFE (a)—AUSTRALIA: 1881-90 TO 1960-62  
(Years)

Age last birthday (years)	1881-90	1891-1900	1901-10	1920-22	1932-34	1946-48	1953-55	1960-62
MALES								
0	47.20	51.08	55.20	59.15	63.48	66.07	67.14	67.92
5	52.86	55.61	57.91	60.43	62.57	63.77	64.32	64.77
10	48.86	51.43	53.53	56.01	58.02	59.04	59.53	59.93
15	44.45	46.98	49.03	51.44	53.36	54.28	54.72	55.07
20	40.58	42.81	44.74	46.99	48.81	49.64	50.10	50.40
25	37.10	38.90	40.60	42.70	44.37	45.04	45.54	45.80
30	33.64	35.11	36.52	38.44	39.90	40.40	40.90	41.12
35	30.06	31.34	32.49	34.20	35.46	35.79	36.25	36.45
40	26.50	27.65	28.56	30.05	31.11	31.23	31.65	31.84
45	23.04	23.99	24.78	26.03	26.87	26.83	27.18	27.38
50	19.74	20.45	21.16	22.20	22.83	22.67	22.92	23.13
55	16.63	17.08	17.67	18.51	19.03	18.84	19.00	19.18
60	13.77	13.99	14.35	15.08	15.57	15.36	15.47	15.60
65	11.06	11.25	11.31	12.01	12.40	12.25	12.33	12.47
70	8.82	8.90	8.67	9.26	9.60	9.55	9.59	9.77
75	6.72	6.70	6.58	6.87	7.19	7.23	7.33	7.47
80	5.11	5.00	4.96	5.00	5.22	5.36	5.47	5.57
85	3.86	3.79	3.65	3.62	3.90	3.84	4.01	4.08
90	2.91	2.91	2.60	2.60	2.99	2.74	2.93	3.02
95	2.16	2.16	1.88	1.86	2.11	1.93	2.10	2.29
100	1.32	1.29	1.18	1.17	1.10	....	....	....
FEMALES								
0	50.84	54.76	58.84	63.31	67.14	70.63	72.75	74.18
5	56.00	58.64	60.80	63.64	65.64	67.91	69.61	70.78
10	51.95	54.46	56.39	59.20	61.02	63.11	64.78	65.92
15	47.54	49.97	51.86	54.55	56.29	58.27	59.90	61.01
20	43.43	45.72	47.52	50.03	51.67	53.47	55.06	56.16
25	39.67	41.69	43.36	45.71	47.19	48.74	50.24	51.32
30	36.13	37.86	39.33	41.48	42.77	44.08	45.43	46.49
35	32.58	34.14	35.37	37.28	38.37	39.46	40.67	41.70
40	29.08	30.49	31.47	33.14	34.04	34.91	36.00	36.99
45	25.56	26.69	27.59	28.99	29.74	30.45	31.44	32.38
50	22.06	22.93	23.69	24.90	25.58	26.14	27.03	27.92
55	18.64	19.29	19.85	20.95	21.58	22.04	22.81	23.63
60	15.39	15.86	16.20	17.17	17.74	18.11	18.78	19.51
65	12.27	12.75	12.88	13.60	14.15	14.44	15.02	15.68
70	9.70	9.89	9.96	10.41	10.98	11.14	11.62	12.19
75	7.24	7.37	7.59	7.73	8.23	8.32	8.69	9.16
80	5.27	5.49	5.73	5.61	6.01	6.02	6.30	6.68
85	3.90	4.12	4.19	4.06	4.30	4.32	4.52	4.79
90	2.98	3.07	2.99	2.91	3.05	3.08	3.24	3.48
95	2.25	2.18	2.10	2.07	2.00	2.14	2.31	2.59
100	1.37	1.23	1.24	1.24	1.02	....	....	....

(a) Refers to population exclusive of full-blood Aborigines; see letterpress *Aborigines* on page 126.



## MARRIAGES

The number of marriages registered in Western Australia in each of the five years 1965 to 1969 is shown in the following table. Marriages celebrated by ministers of religion are distinguished from those celebrated by civil officers, and the numbers of minors marrying are also shown.

## MARRIAGES REGISTERED (a)

Year	Marriages celebrated by—		All marriages	Proportion celebrated by civil officers (per cent)	Marriages of minors						
	Ministers of religion	Civil officers			Males	Per cent of all bridegrooms	Females	Per cent of brides	Total minors married		
PERTH STATISTICAL DIVISION											
1965	....	....	3,805	660	4,465	14.8	677	15.16	1,934	43.31	2,611
1966	....	....	4,190	689	4,879	14.1	751	15.39	2,192	44.93	2,943
1967	....	....	4,395	823	5,218	15.8	863	16.54	2,442	46.80	3,305
1968	....	....	4,650	940	5,590	16.8	927	16.58	2,568	45.94	3,495
1969	....	....	5,308	1,133	6,441	17.6	993	15.42	2,950	45.80	3,943
OTHER DIVISIONS											
1965	....	....	1,701	282	1,983	14.2	287	14.47	973	49.07	1,260
1966	....	....	1,805	317	2,122	14.9	306	14.42	1,056	49.76	1,362
1967	....	....	1,894	318	2,212	14.4	357	16.14	1,116	50.45	1,473
1968	....	....	2,160	336	2,496	13.5	425	17.03	1,273	51.00	1,698
1969	....	....	2,155	397	2,552	15.6	398	15.60	1,234	48.35	1,632
WESTERN AUSTRALIA											
1965	....	....	5,506	942	6,448	14.6	964	14.95	2,907	45.08	3,871
1966	....	....	5,995	1,006	7,001	14.4	1,057	15.10	3,248	46.39	4,305
1967	....	....	6,289	1,141	7,430	15.4	1,220	16.42	3,558	47.89	4,778
1968	....	....	6,810	1,276	8,086	15.8	1,352	16.72	3,841	47.50	5,193
1969	....	....	7,463	1,530	8,993	17.0	1,391	15.47	4,184	46.53	5,575

(a) See NOTE on page 147.

The statistics of minors marrying during the five-year period as shown above reveal that 46.7 per cent of brides were minors, compared with only 15.8 per cent of bridegrooms.

**Age at Marriage.** The relative ages of bridegrooms and brides who married in Western Australia in 1969 are shown in the following table.

## RELATIVE AGES OF BRIDEGROOMS AND BRIDES, 1969 (a)

Age of bridegroom (years)	Total bridegrooms	Age of bride (years)							
		Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 and over
Under 20	675	1	564	111	....	16	....	....	....
20-24	4,956	1	1,955	2,823	156	68	4	1	....
25-29	1,911	....	300	1,168	354	68	15	4	2
30-34	531	....	27	198	180	79	28	13	6
35-39	279	....	7	46	77	70	45	21	13
40-44	195	....	3	16	33	38	39	40	26
45-49	119	....	1	6	8	15	25	23	41
50-54	95	....	1	1	2	6	4	16	65
55-59	80	....	....	....	3	3	3	17	54
60-64	65	....	....	....	....	....	3	1	61
65 and over	87	....	....	....	1	1	1	2	82
Total brides	8,993	1	2,858	4,369	814	296	167	138	350

(a) See NOTE on page 147.

Of the women who married in 1969, 31·79 per cent were aged less than twenty years. The corresponding figure for men was 7·51 per cent.

The following table gives details of the average age and the conjugal condition of bridegrooms and brides in each of the five years to 1969. In each year of the period the difference in the average age of bridegrooms and brides was about three years, the difference in 1969 being 2·85 years.

AVERAGE AGES OF BRIDEGROOMS AND BRIDES (a)

Year	Average age of bridegrooms (years)				Average age of brides (years)			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
1965 ....	24·46	54·65	42·31	26·41	21·32	49·54	38·10	23·26
1966 ....	24·91	54·95	41·97	26·83	21·81	48·78	38·24	23·76
1967 ....	24·78	56·46	40·92	26·84	21·79	48·91	38·04	23·74
1968 ....	24·57	55·12	41·04	26·37	21·57	48·16	37·27	23·41
1969 ....	24·58	54·94	40·30	26·36	21·71	47·82	37·13	23·51

(a) See NOTE on page 147.

The following table shows the age and conjugal condition at time of marriage of bridegrooms and brides who married in Western Australia during 1969.

AGE AND CONJUGAL CONDITION OF BRIDEGROOMS AND BRIDES, 1969 (a)

Age at marriage (years)	Bridegrooms				Brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
Under 20	675	....	....	675	2,855	1	3	2,859
20-24 ....	4,943	1	12	4,956	4,304	7	58	4,369
25-29 ....	1,818	7	86	1,911	691	25	98	814
30-34 ....	397	12	122	531	159	28	109	296
35-39 ....	170	13	96	279	54	32	81	167
40-44 ....	89	28	78	195	34	28	76	138
45-49 ....	28	23	68	119	25	42	60	127
50-54 ....	28	31	36	95	5	35	36	76
55-59 ....	18	27	35	80	9	34	16	59
60-64 ....	11	33	21	65	6	26	9	41
65 and over	14	60	13	87	5	35	7	47
Total ....	8,191	235	567	8,993	8,147	293	553	8,993

(a) See NOTE on page 147.

The numbers and ages of minors who married in Western Australia during each of the five years 1965 to 1969 are given in the following table.

MARRIAGES OF MINORS (a)

Year	Bridegrooms							Brides						
	Age last birthday (years)							Age last birthday (years)						
	Under 16	16	17	18	19	20	Under 21	Under 16	16	17	18	19	20	Under 21
1965 ....	....	....	9	182	292	481	964	11	168	392	714	764	858	2,907
1966 ....	....	....	12	170	407	468	1,057	9	155	407	708	1,037	932	3,248
1967 ....	....	1	14	211	384	610	1,220	14	193	405	743	1,062	1,141	3,558
1968 ....	....	....	20	213	422	697	1,352	16	211	481	857	1,101	1,175	3,841
1969 ....	....	....	11	224	440	716	1,391	6	231	517	905	1,200	1,325	4,184

(a) See NOTE on page 147.

**Religious and Civil Marriages.** The *Marriage Act* 1961-1966 (Commonwealth) provides that marriages may be celebrated either by ministers of religion registered for the purpose with the Registrar of Ministers of Religion in each State or Territory or by certain civil officers, usually District Registrars.

The following table, which relates to marriages registered in Western Australia during the period 1965 to 1969, shows the numbers and proportions celebrated by ministers of the principal religious denominations and by civil officers.

RELIGIOUS AND CIVIL MARRIAGES (a)

Category of celebrant	1965	1966	1967	1968	1969	
					Number	Per cent of total
Ministers of religion—						
Recognised denominations (b)—						
Church of England in Australia .....	2,012	2,235	2,388	2,560	2,754	30.6
Roman Catholic Church .....	1,700	1,851	1,928	2,122	2,436	27.1
The Methodist Church of Australasia .....	723	817	806	892	975	10.8
The Presbyterian Church of Australia .....	381	392	405	410	523	5.8
Churches of Christ in Australia .....	124	132	176	190	162	1.8
Congregational Union of Australia .....	103	105	127	128	109	1.2
The Baptist Union of Australia .....	97	101	104	105	110	1.2
Orthodox Church (c) .....	67	63	70	71	82	0.9
The New Church in Australia .....	93	85	58	68	6	0.1
The Salvation Army .....	38	43	50	46	48	0.5
Seventh-day Adventist Church .....	43	32	36	42	45	0.5
Lutheran Church (c) .....	33	35	26	53	46	0.5
Church of Jesus Christ of Latter Day Saints .....	7	14	20	15	14	0.2
Jehovah's Witnesses .....	16	19	16	24	36	0.4
Jewry .....	14	15	11	7	14	0.2
Other recognised denominations .....	44	40	43	48	66	0.7
Other ministers .....	11	16	25	29	37	0.4
Total, Ministers of religion .....	5,506	5,995	6,289	6,810	7,463	83.0
Civil officers .....	942	1,006	1,141	1,276	1,530	17.0
Total marriages .....	6,448	7,001	7,430	8,086	8,993	100.0
Proportion of total (per cent)—						
Ministers of religion .....	85.4	85.6	84.6	84.2	....	83.0
Civil officers .....	14.6	14.4	15.4	15.8	....	17.0

(a) See NOTE on page 147. (b) Under authority of the *Marriage Act* 1961-1966 (Commonwealth). (c) Includes churches grouped under this heading in the proclamation made under the *Marriage Act*.

**Marriage Rates.** The average annual marriage rates per thousand of mean population for Western Australia and for the Commonwealth in each five-year period from 1916 to 1965, as well as the rates for each of the years from 1960 to 1969, are shown in the following table.

MARRIAGE RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (b)		Year	Annual rate (b)	
	Western Australia	Australia		Western Australia	Australia
1916-20 .....	6.80	7.82	1960	7.36	7.34
1921-25 .....	7.27	8.04	1961	6.98	7.30
1926-30 .....	7.80	7.52	1962	7.23	7.39
1931-35 .....	7.58	7.16	1963	7.40	7.42
1936-40 .....	9.49	9.35	1964	7.55	7.73
			1965	7.91	8.25
1941-45 .....	9.74	9.94	1966	8.36	8.31
1946-50 .....	10.01	9.77			
1951-55 .....	8.44	8.29	1967	8.47	8.46
1956-60 .....	7.36	7.50	1968	8.88	8.83
1961-65 .....	7.43	7.63	1969	9.49	9.14

(a) See NOTE on page 147. (b) Rates for the years 1961 to 1965 have been revised in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census.

## DIVORCE

The *Matrimonial Causes Act* 1959-1966 (Commonwealth), which came into operation on 1 February 1961, establishes uniform grounds throughout Australia for the termination of marriage. Previously, each State was primarily responsible for the provision of matrimonial relief but the law varied from State to State. While the Commonwealth Act supersedes the divorce laws of the States, jurisdiction continues to be vested in the Courts of the States.

Under the uniform law, grounds for dissolution of marriage (*i.e.* divorce) include desertion for not less than two years, adultery, separation for not less than five years, cruelty, drunkenness, and failure to comply with maintenance orders. The main ground, for nullity of marriage are bigamy and incapacity to consummate the marriage.

Decrees may be granted by a Court for dissolution of marriage, judicial separations, nullity of marriage, and restitution of conjugal rights. Orders may also be made for the custody and welfare of children, maintenance, the settlement of property, and damages for adultery.

A decree for dissolution of marriage is in the first instance a decree *nisi*. The decree automatically becomes absolute at the expiration of three months, unless it is in the meantime rescinded; appeal proceedings are instituted; or there are children of the marriage under the age of sixteen years, in which case the court must be satisfied that appropriate arrangements have been made for their welfare before the decree will become absolute. The parties cannot remarry until a decree *nisi* has become absolute. A decree of judicial separation is available on most of the grounds available for divorce.

## PETITIONS FILED

Year	Petitions for—				Total petitions	Petitioner	
	Dissolution of marriage	Nullity of marriage	Judicial separation	Restitution of conjugal rights		Husband	Wife
1965	736	2	....	5	743	374	369
1966	787	3	1	7	798	384	414
1967	888	2	....	3	893	412	481
1968	995	5	3	3	1,006	489	517
1969	1,059	5	1	6	1,071	503	568

The following table gives the number of decrees absolute granted and the grounds for the decrees in the period 1965 to 1969. In each year except 1967, adultery was the principal ground for divorce, and accounted for 35·7 per cent of all decrees granted during the five years.

## DISSOLUTION OF MARRIAGE—DECREES ABSOLUTE GRANTED

Year	Ground (a)					Total decrees absolute	Petitioner		
	Adultery	Desertion	Separation for 5 years or longer	Maintenance (b)	Other		Husband	Wife	Both parties
1965	213	194	168	6	23	604	275	329	....
1966	251	208	154	5	19	637	314	322	1
1967	249	258	189	2	28	726	345	381	....
1968	305	259	204	7	37	812	365	447	....
1969	340	311	183	7	31	872	421	451	....

(a) Where a dissolution is granted on two or more grounds, only one ground is tabulated, preference being given in the order shown.

(b) Non-compliance with maintenance order.

In the following table particulars are given of the duration of marriage, *i.e.* the interval between marriage and the date when the decree was made absolute, for marriages dissolved during the five years 1965 to 1969.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED

Year of dissolution of marriage	Marriages dissolved after a duration of—								Total marriages dissolved
	Under 5 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35 years and over	
1965	39	165	130	106	73	50	20	21	604
1966	53	141	155	123	69	44	29	23	637
1967	76	162	138	128	102	68	31	21	726
1968	71	219	167	133	108	61	34	19	812
1969	92	223	180	129	128	71	32	17	872

The following table shows, for the year 1969, the number of marriages dissolved, classified according to duration of marriage and the number of children of the marriage.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED AND NUMBER OF CHILDREN, 1969

Duration of marriage (years)	Marriages dissolved with—							Total marriages dissolved		Total number of children (a)
	No children	1 child	2 children	3 children	4 children	5 children	6 or more	Number	Per cent	
0-4	58	26	8	.....	.....	.....	.....	92	10.6	42
5-9	64	72	63	14	8	2	.....	223	25.6	282
10-14	37	27	60	33	16	5	2	180	20.6	347
15-19	8	18	44	29	18	9	3	129	14.8	328
20-24	16	21	36	33	12	9	1	128	14.7	291
25-29	35	18	10	5	3	.....	.....	71	8.1	65
30-34	26	5	.....	1	.....	.....	.....	32	3.7	8
35 and over	16	1	.....	.....	.....	.....	.....	17	1.9	1
Petitioner—										
Husband	131	93	98	55	29	10	5	421	48.3	650
Wife	129	95	123	60	28	15	1	451	51.7	714
Total	260	188	221	115	57	25	6	872	100.0	1,364

(a) At date of petition. The term *children* refers to *children of the marriage* as defined in the Matrimonial Causes Act, living and under 21 years of age.

The following table shows, for the year 1969, the ages of husband and wife at the date of decree absolute.

DISSOLUTION OF MARRIAGE—AGES OF PARTIES, 1969

Age group (a) of husband (years)	Age group (a) of wife (years)										Total husbands	
	Under 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 and over	Number	Per cent
Under 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20-24	1	22	2	.....	.....	.....	.....	.....	.....	.....	25	2.9
25-29	1	59	67	4	.....	.....	.....	.....	.....	.....	131	15.0
30-34	.....	1	67	62	6	1	.....	.....	.....	.....	143	16.4
35-39	.....	2	15	66	46	10	1	1	.....	.....	141	16.2
40-44	.....	.....	3	22	46	57	7	1	.....	.....	136	15.6
45-49	.....	.....	1	3	12	48	42	5	3	1	115	13.2
50-54	.....	.....	.....	.....	3	13	29	21	6	2	74	8.5
55-59	.....	.....	.....	.....	2	7	10	20	7	5	51	5.8
60 and over	.....	.....	.....	.....	1	1	2	14	16	22	56	6.4
Total wives—												
Number	2	90	155	157	116	137	91	62	32	30	872	.....
Per cent	0.2	10.3	17.8	18.0	13.3	15.7	10.4	7.1	3.7	3.4	.....	100.0

(a) Age at date of decree absolute.

## CHAPTER V—SOCIAL CONDITIONS

### Part 1—Education

#### PRIMARY, SECONDARY AND TECHNICAL EDUCATION

In Western Australia, education at primary and secondary levels is provided at government schools administered and staffed by the Education Department and at non-government schools, most of which are conducted by the principal religious denominations. The Technical Education Division of the Education Department provides technician-level courses, apprenticeship and part-apprenticeship training programmes, general studies (including courses for students preparing for public and other external examinations), and adult education (including classes designed as leisure-type studies).

#### Government Financial Assistance

The State Government each year awards to country students 150 scholarships, valued at \$81 per annum, tenable for the first three years of secondary education at government or non-government schools and a further ten scholarships, valued at \$162 per annum, tenable in the fourth and fifth years. Selected students intending to enter the teaching service are granted bursaries, also valued at \$162 per annum and tenable in the fourth and fifth years. All these amounts are additional to the boarding allowances which are paid to students who are obliged to live away from home to attend secondary schools. As a contribution towards tuition fees at non-government schools assistance is made available on the basis of \$30 annually for a student in the first three years of secondary education and \$36 in each of the fourth and fifth years, except in the case of students in receipt of any scholarship, bursary or like award of a value exceeding \$80 per annum. Further assistance is available to non-government schools on the basis of \$20 per annum in respect of each pupil in primary grades.

All these forms of assistance are granted without the application of a means test.

The State Government provides financial aid to non-government schools by a system of direct annual grants. The value of these grants is determined by the number of primary and secondary enrolments. Assistance is also given by way of reimbursement of interest paid, up to a prescribed maximum rate, on moneys borrowed since 1 January 1965 for expenditure on new residential accommodation for scholars. In addition, subsidies are provided for the installation of swimming pools.

The Commonwealth Government makes an annual award of scholarships tenable by students in the fourth and fifth years of secondary education at government and non-government schools, as well as technical scholarships for certain courses at technical institutions. Benefits, which are not subject to a means test, comprise, for full-time students, a living allowance of \$200 per annum, \$50 per annum for text books and equipment, and up to \$150 per annum for fees. For part-time technical students, allowances of \$100 per annum, not subject to a means test, are granted and compulsory fees are reimbursed up to a maximum of \$100 per annum. Aboriginal study grants are payable by the Commonwealth Government to assist persons of Aboriginal descent to undertake courses of post-secondary education. The grants provide a living allowance to full-time students of up to \$1,100 per annum, a textbook allowance and payment of compulsory fees. Where appropriate, travel and dependants' allowances are also payable. Commonwealth Advanced Education Scholarships are awarded each year to students in approved non-university tertiary courses. They provide benefits comprising payment of compulsory fees and a living allowance which is subject to a means test.

The Commonwealth Government also provides assistance for secondary and technical education by means of specific-purpose grants for science laboratories, technical training and school libraries. Reference to these grants will be found in the section *Commonwealth Financial Assistance for Education* on pages 187-9.

### School Attendance

Where a child lives within reasonable access of a government or approved non-government school, attendance is compulsory from the age of six years and upward to the end of the year in which the child attains the age of fifteen years, unless satisfactory instruction is provided elsewhere. The Minister for Education may, however, if he is satisfied that the best interests of the child would be served, exempt a child from further attendance at school if the child has attained the age of fourteen years, is assured of employment and it is necessary for the child to leave school in order to engage in that employment.

### School Enrolments

The following tables give a classification according to age of pupils enrolled at government and non-government schools on 1 August in the years shown.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS  
PUPILS CLASSIFIED ACCORDING TO AGE

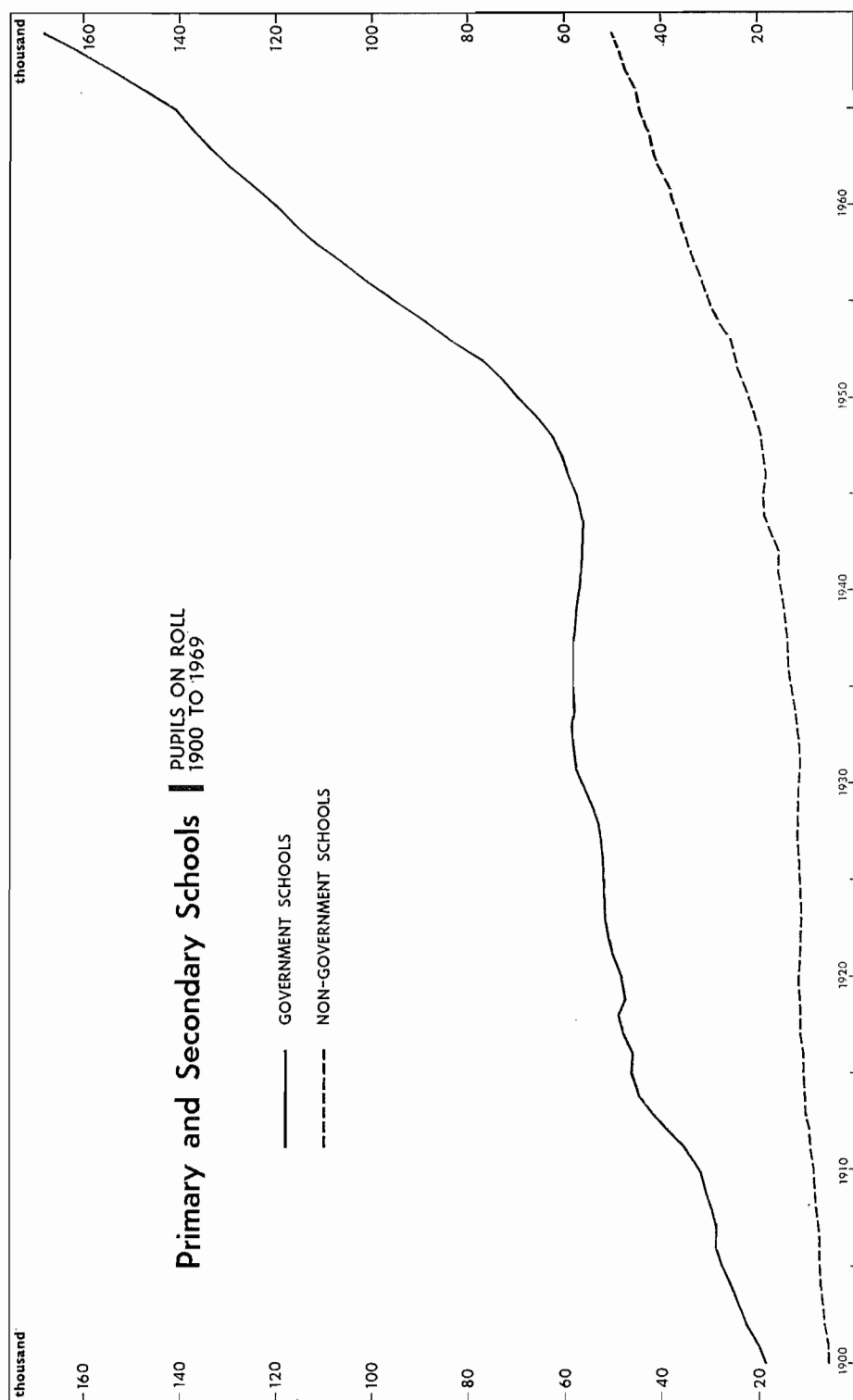
Age last birthday (a) (years)	Government schools (b)					Non-government schools (c)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
Under 6	5,800	5,870	6,196	6,409	6,584	8,223	8,891	9,379	9,750	10,706
6	14,117	14,865	15,517	16,042	16,965	3,487	3,356	3,594	3,477	3,647
7	14,208	14,740	15,494	16,355	16,818	3,294	3,364	3,471	3,539	3,463
8	14,114	14,799	15,401	16,241	17,165	3,311	3,193	3,309	3,442	3,400
9	14,506	14,685	15,363	15,975	16,810	3,271	3,242	3,269	3,270	3,449
10	14,374	15,038	15,163	15,967	16,648	3,210	3,231	3,265	3,276	3,379
11	13,737	14,487	15,464	15,574	16,308	3,113	3,297	3,368	3,321	3,388
12	13,417	13,728	14,619	15,436	15,646	3,446	3,469	3,718	3,747	3,725
13	13,032	13,400	13,457	14,507	15,231	3,816	3,888	3,936	4,116	4,185
14	11,586	12,349	13,314	13,305	14,399	3,464	3,528	3,829	3,961	4,002
15	6,995	7,560	9,062	9,227	9,327	2,715	2,924	3,106	3,249	3,303
16	2,965	3,202	3,481	3,822	4,198	1,743	1,891	1,985	2,112	2,177
17	1,341	1,434	1,636	1,690	1,901	938	1,005	1,067	1,114	1,239
18 and over	164	154	168	196	195	177	172	163	183	181
Total	140,356	146,311	154,335	160,746	168,195	44,208	45,451	47,459	48,557	50,244

(a) At 1 August. (b) Includes Special Schools and Classes; see letterpress on page 174. Excludes Technical Schools and Colleges; see first table on page 176. Excludes also part-time students enrolled in the Western Australian Correspondence School. (c) Includes pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools; see letterpress on pages 177-8.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS  
PUPILS CLASSIFIED ACCORDING TO AGE AND SEX: AUGUST 1969

Age last birthday (a) (years)	Government schools (b)			Non-government schools (c)			All schools (b) (c)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Under 6	3,407	3,177	6,584	5,455	5,251	10,706	8,862	8,428	17,290
6	8,832	8,133	16,965	1,817	1,830	3,647	10,649	9,963	20,612
7	8,783	8,035	16,818	1,641	1,822	3,463	10,424	9,857	20,281
8	8,937	8,228	17,165	1,639	1,761	3,400	10,576	9,989	20,565
9	8,765	8,045	16,810	1,586	1,863	3,449	10,351	9,908	20,259
10	8,716	7,932	16,648	1,589	1,790	3,379	10,305	9,722	20,027
11	8,500	7,808	16,308	1,579	1,809	3,388	10,079	9,617	19,696
12	8,210	7,436	15,646	1,746	1,979	3,725	9,956	9,415	19,371
13	8,155	7,076	15,231	2,006	2,179	4,185	10,161	9,255	19,416
14	7,482	6,917	14,399	1,805	2,197	4,002	9,287	9,114	18,401
15	5,002	4,325	9,327	1,612	1,691	3,303	6,614	6,016	12,630
16	2,390	1,808	4,198	1,095	1,082	2,177	3,485	2,890	6,375
17	1,159	742	1,901	666	573	1,239	1,825	1,315	3,140
18 and over	149	46	195	137	44	181	286	90	376
Total	88,487	79,708	168,195	24,373	25,871	50,244	112,860	105,579	218,439

For footnotes, see previous table.





School censuses are conducted annually at or about the beginning of August in all States and the internal Territories of Australia. The Western Australian Correspondence School (see letterpress on page 174), special schools and classes (see letterpress on page 174), schools in institutional homes, hospitals and similar establishments, and kindergartens are included in the census. Institutions such as business colleges and coaching establishments are excluded.

In the following table pupils enrolled in primary grades at 1 August 1969 are classified according to grade and age. The figures exclude particulars of pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. Reference to kindergarten schools will be found on pages 177-8.

## PRIMARY ENROLMENTS—AGE AND GRADE AT 1 AUGUST 1969

Age last birthday (years)	Grade							Ungraded pupils—		Total
	1	2	3	4	5	6	7	In special classes (a)	In special schools(a)	
GOVERNMENT SCHOOLS										
Under 6	6,524	2	....	....	....	....	....	1	57	6,584
6	11,007	5,874	8	....	....	....	....	16	60	16,965
7	841	10,371	5,468	13	....	....	....	38	87	16,818
8	66	1,038	10,512	5,339	8	....	....	117	85	17,165
9	10	116	1,119	10,048	5,208	12	....	214	83	16,810
10	5	18	115	1,178	9,946	5,013	6	261	106	16,648
11	2	8	24	124	1,102	9,549	5,130	272	86	16,297
12	3	1	30	136	1,026	9,432	230	67	10,933	16,297
13	1	3	9	12	32	114	1,070	48	81	13,701
14	1	1	2	4	16	10	96	1	92	223
15	....	....	....	2	2	1	18	....	74	97
16	....	....	1	....	....	....	1	1	48	51
17	....	....	....	....	....	....	....	....	48	48
18 and over	....	1	1	2	....	....	....	....	19	23
Total	18,460	17,433	17,267	16,752	16,450	15,725	15,753	1,199	993	120,032

## NON-GOVERNMENT SCHOOLS (b)

Under 6	1,289	2	....	....	....	....	....	....	13	1,304
6	2,408	1,207	1	....	....	....	....	....	1	3,617
7	139	2,232	1,083	3	....	....	....	....	3	3,460
8	8	234	2,105	1,047	5	....	....	....	....	3,399
9	3	28	2,087	1,017	15	....	....	....	1	3,449
10	1	11	49	314	1,978	1,022	....	....	....	3,379
11	....	2	7	31	251	2,033	1,057	....	....	3,381
12	....	....	3	5	50	311	2,081	....	....	2,450
13	....	....	2	2	19	53	309	....	....	385
14	....	....	....	....	5	22	57	....	....	84
15	....	....	....	....	3	2	15	....	....	20
16	....	....	....	....	....	....	1	....	....	1
17	....	....	....	....	....	....	....	....	....	....
18 and over	....	....	....	....	....	....	....	....	....	....
Total	3,848	3,716	3,548	3,489	3,328	3,458	3,524	....	18	24,929

## ALL SCHOOLS (b)

Under 6	7,813	4	....	....	....	....	....	1	70	7,888
6	13,415	7,081	9	....	....	....	....	16	61	20,582
7	980	12,603	6,551	16	....	....	....	38	90	20,278
8	74	1,272	12,617	6,386	13	....	....	117	85	20,564
9	13	144	1,417	12,135	6,225	27	....	214	84	20,259
10	6	29	164	1,492	11,924	6,035	10	261	106	20,027
11	2	10	31	155	1,353	11,582	6,187	272	86	19,678
12	3	1	11	35	186	1,337	11,513	230	67	13,383
13	1	3	11	14	51	167	1,379	48	81	1,755
14	1	1	2	4	21	32	153	1	92	307
15	....	....	....	2	5	3	33	....	74	117
16	....	....	1	....	....	....	2	1	48	52
17	....	....	....	....	....	....	....	....	48	48
18 and over	....	1	1	2	....	....	....	....	19	23
Total	22,308	21,149	20,815	20,241	19,778	19,183	19,277	1,199	1,011	144,961

(a) See letterpress *Special Schools and Classes* on page 174.

(b) Excludes 9,191 pupils attending kindergarten schools and 245 pupils in kindergarten grades at other non-government schools.

The following table gives a classification of school enrolments at secondary level at 1 August 1969 according to year of study and age of pupil.

### SECONDARY ENROLMENTS—AGE AND YEAR OF STUDY AT 1 AUGUST 1969

Age last birthday (years)	Year of study					Ungraded pupils (a)	Total
	1	2	3	4	5		
GOVERNMENT SCHOOLS							
11	11	....	....	....	....	....	11
12	4,680	9	....	....	....	24	4,713
13	9,205	4,457	3	....	....	196	13,861
14	1,151	8,970	3,865	1	....	189	14,176
15	68	996	6,819	1,275	4	68	9,230
16	15	103	749	2,414	861	5	4,147
17	3	8	89	189	1,564	....	1,853
18 and over	....	....	8	8	156	....	172
Total	15,133	14,543	11,533	3,887	2,585	482	48,163

### NON-GOVERNMENT SCHOOLS

11	7	....	....	....	....	....	7
12	1,265	10	....	....	....	....	1,275
13	2,597	1,200	3	....	....	....	3,800
14	300	2,528	1,083	7	....	....	3,918
15	29	334	2,241	671	8	....	3,283
16	2	22	327	1,273	552	....	2,176
17	....	1	18	175	1,045	....	1,239
18 and over	....	....	5	19	157	....	181
<b>Total</b>	<b>4,200</b>	<b>4,095</b>	<b>3,677</b>	<b>2,145</b>	<b>1,762</b>	<b>....</b>	<b>15,879</b>

### ALL SCHOOLS

11	18	....	....	....	....	....	18
12	5,945	19	....	....	....	24	5,988
13	11,802	5,657	6	....	....	196	17,661
14	1,451	11,498	4,948	8	....	189	18,094
15	97	1,330	9,060	1,946	12	68	12,513
16	17	125	1,076	3,687	1,413	5	6,323
17	3	9	107	364	2,609	....	3,092
18 and over	....	....	13	27	313	....	353
<b>Total</b>	<b>19,333</b>	<b>18,638</b>	<b>15,210</b>	<b>6,032</b>	<b>4,347</b>	<b>482</b>	<b>64,042</b>

(a) See letterpress *Special Schools and Classes* on page 174.

## THE EDUCATION DEPARTMENT

The Education Department is responsible for the organisation and management of the State Government's education programme and is controlled by a Director-General of Education responsible to the Minister for Education. The administrative structure of the Department provides for five Divisions. The Divisions, each of which is in the charge of a Director, are those of Primary Education, Secondary Education, Technical Education, Teacher Education, and Special Services. Special Branches attached to particular Divisions are concerned with such activities as physical education (including swimming instruction), music, drama, art and crafts, visual education and publications. In addition there is provision for a number of other services which are concerned with particular aspects of the education and welfare of school children, such as the Nature Advisory Service, and the School Medical and Dental Services conducted in collaboration with the Department of Public Health.

### Primary and Secondary Schools

Instruction in the primary school is given in seven grades. A child who makes normal progress completes the course at the age of twelve years and may then enter high school. A Senior High School provides tuition to standards required for the Junior Examination,

usually taken at the age of fifteen years, and the Leaving Examination, which is the final examination in Western Australian secondary schools and is normally taken at the age of seventeen years. A High School gives instruction in the first three years of the secondary school curriculum leading to the Junior Examination. A Junior High School is one which provides primary and post-primary education to Junior level. At some centres where there is no high school, post-primary subjects are taught at the primary school.

Children who do not enter for the Junior Examination may elect to sit for a High School Certificate examination, which is also taken at about the age of fifteen years.

The Junior Certificate is being replaced by an Achievement Certificate. It is expected that the last Junior Examination for pupils of government schools will take place in 1971, and for a small number of pupils of non-government schools in 1972. An amendment made to the Education Act in 1969 provides for the establishment of a Board of Secondary Education. The principal functions of the Board are, in respect of secondary schools and other bodies and institutions conducting courses of secondary education, to approve courses of study; assist in assessment of students; ensure comparability of such assessments; and issue certificates of achievement to students.

The following table shows the number of schools in each category, the number of teachers employed in primary and secondary education and the number of pupils classified according to grade of education, for each of the years 1965 to 1969. The figures shown under the heading 'On special duties' represent teachers engaged in activities associated with the Division of Special Services and the Special Branches of the Department.

## GOVERNMENT SCHOOLS

Particulars	At 1 August—				
	1965	1966	1967	1968	1969

NUMBER OF SCHOOLS					
Primary schools ....	466	473	481	482	484
Junior high schools ....	38	37	37	40	40
High schools ....	18	20	19	19	20
Senior high schools ....	22	25	28	29	29
Total ....	544	555	565	570	573

NUMBER OF TEACHERS (a)					
Engaged in teaching duties ....	4,934	5,213	5,534	5,910	6,306
On special duties ....	92	92	110	121	121
On leave ....	78	90	90	110	70
Total ....	5,104	5,395	5,734	6,141	6,497
Males ....	2,734	2,766	2,869	3,072	3,164
Females ....	2,370	2,629	2,865	3,069	3,333
Total ....	5,104	5,395	5,734	6,141	6,497

NUMBER OF PUPILS					
Grade of education—					
Primary ....	102,213	105,882	110,821	115,217	120,032
Secondary—Years 1, 2 and 3 ....	33,733	35,578	38,076	39,768	41,691
Years 4 and 5 ....	4,410	4,851	5,438	5,761	6,472
Total ....	140,356	146,311	154,335	160,746	168,195
Males ....	73,751	77,038	81,177	84,613	88,487
Females ....	66,605	69,273	73,158	76,133	79,708
Total ....	140,356	146,311	154,335	160,746	168,195

(a) Excluding persons teaching part-time.

### **Primary and Secondary Curriculum**

In primary schools the subjects taught are English, mathematics, social studies, elementary science, physical education, handicrafts, music and art. Handicrafts in the primary schools consist of needlework for girls and such crafts as leatherwork, bookbinding, papiermache work and canework for boys. At the post-primary levels, mathematics, languages, science subjects, economics, home economics, woodwork, metal work and technical drawing are introduced. The teaching of elementary science aims at a better understanding of the child's physical environment. The course is adapted to the conditions of the particular neighbourhood, and so varies between town and country areas. In musical expression, choral singing receives most attention, although school orchestras are being developed in some primary and high schools. Advisory teachers, under the direction of specialist superintendents, assist teachers in the fields of handicrafts, physical education, art, music, speech, drama and elementary science.

Education in the government schools is secular in character but periods are set aside during which representatives of various religious denominations attend to give religious instruction. In addition, instruction in scripture stories is given by class teachers.

### **Radio, Television and Film Aids**

Extensive use is made of radio and films, most schools having radio receivers and many being equipped also with film projectors and sound-reproduction systems. The use of television is increasing, particularly in secondary schools, as an aid in the teaching of mathematics, science, literature, social studies and languages. The Australian Broadcasting Commission co-operates with the Education Department in providing suitable radio and television programmes and Parents and Citizens' Associations assist in supplying the necessary equipment. The Audio-Visual Education Branch of the Department provides a wide variety of audio-visual aids.

### **Student Counselling and Vocational Guidance**

Guidance officers of the Division of Special Services are available to discuss with parents the most suitable courses of study for their children and vocational guidance is given to pupils leaving high school. In addition, cases of handicapped or educationally retarded children are investigated and appropriate courses of education recommended.

### **Special Schools and Classes**

The Division of Special Services provides a variety of assistance for physically and mentally handicapped children. A Kindergarten and Infant School for Deaf Children is maintained, as well as a Deaf School for older pupils. Special classes are organised for the blind and for the mentally handicapped, and instruction is given to patients at the Princess Margaret Hospital for Children and at other hospitals. The Department co-operates with welfare organisations, such as the Spastic Welfare Association and the Slow Learning Children's Group, by making teachers available to them.

### **Correspondence Tuition**

The Western Australian Correspondence School provides tuition by correspondence for children living in remote areas or unable to attend school for other reasons. The service extends also to post-primary students in the smaller country schools, to sick and invalid children, and to some adults in country areas. Adults enrol mainly to prepare for nursing training or for the Junior Examination and similar examinations, or to improve their general education. At 1 August 1969, full-time students enrolled in the Correspondence School comprised 466 primary and 54 secondary students.

Schools of the Air are conducted through the radio network of the Royal Flying Doctor Service from bases at Carnarvon, Derby, Kalgoorlie, Meekatharra and Port Hedland to supplement tuition provided by the Correspondence School.

### **Education of Aborigines**

Aboriginal and part-Aboriginal children are admitted to ordinary schools and are educated under the same conditions as other children. For schools with a preponderance of Aborigines, special attention is directed to the framing of courses of study suited to the vocational needs of the older Aboriginal pupils. In August 1969 there were 5,032 Aboriginal and part-Aboriginal children at government primary schools and high schools and 1,071 at non-government schools.

### **Agricultural Education**

Agricultural education is provided at certain high schools. Residential accommodation is available at the Narrogin Agricultural Senior High School, the Harvey Agricultural High School and the Agricultural Junior High Schools at Cunderdin and Denmark. Day instruction is provided by high schools at Esperance, Kojonup, Manjimup, Margaret River, Morawa, Mount Barker and Wyalkatchem. Preference is given to the sons of farmers but other suitably qualified boys, with the physical capacity for farm work, are admitted. The curriculum is designed as a continuation of general education to standards equivalent to those of other types of schools but with appropriate vocational emphasis. The aim is to produce young men capable of becoming leaders in rural communities as well as being successful farmers with an appreciation of the value of scientific methods in agriculture. Each school providing agricultural instruction has agricultural land attached to it.

In addition to the activities of the Education Department in the field of agricultural education, facilities are also provided by Muresk Agricultural College, a department of The Western Australian Institute of Technology (see letterpress on pages 178-81).

### **Technical Education**

Institutions under the control of the Technical Education Division at 31 December 1969 comprised five technical colleges, six technical schools, nine technical centres with full-time officers in charge, and seventy-two technical centres with part-time officers in charge. One of the colleges, the Technical Extension Service, conducts correspondence courses and extension classes to provide instruction where it is not practicable to establish a technical school or centre. The Division has a Counselling Service which is available to advise students in selecting a course, to assist them in their studies, and to provide consultant services to industry and commerce on staff selection and training.

Courses leading to the award of a Diploma or a Certificate are available on a full-time or a part-time basis, instruction ranging from the training of technicians to the preparation of students for professional occupations. Part-time classes are established at all technical schools and centres, subject to local demand for tuition and availability of teaching staff.

The Perth Technical College offers a variety of diploma and certificate courses as well as courses of a general educational nature, and trade training in printing. It also caters for cultural and leisure-time interests by providing instruction in a range of basic skills. The Fremantle Technical College has a matriculation group and also offers a wide variety of trade courses, including shipwrighting, fitting and machining, and sheep and wool technology. The work of the Leederville Technical College relates mainly to the building industry and furnishing trades, but it also accommodates a matriculation group. The Mount Lawley Technical College provides training in baking, hairdressing and the electrical and meat industry trades, as well as commercial vocational training.

The Wembley Technical School provides courses for apprentices in the engineering trades, while the Carlisle Technical School is concerned mainly with training for trades associated with the automotive industry. Technical schools at Claremont, Midland, Bunbury and Kalgoorlie aim to meet the needs of the districts in which they are situated and give tuition in those subjects for which there is sufficient local demand.

There are eighty-one technical centres, where evening classes are provided. Twenty of these are located at the Department's ordinary metropolitan schools and fifty-nine at its country schools. The two remaining centres are country technical training centres not associated with a school.

Apprentices who live within reach of a technical school providing the appropriate instruction must attend classes, usually for eight hours per fortnight. For apprentices in country areas correspondence courses, sometimes conducted in supervised study groups, are available as well as intensive courses during which they have access to the full range of specialised instructors and equipment in the metropolitan area. Reference to the numbers of persons apprenticed to various trades will be found in Chapter X.

At all technical schools and centres where there is enough demand and teachers can be provided, instruction is given in such leisure-time activities as dressmaking, millinery, cookery, home furnishing, pottery, woodwork and motor vehicle maintenance.

#### TECHNICAL EDUCATION

Particulars	1965	1966	1967 (a)	1968	1969
Number of—					
Teaching positions (b)—					
Full-time	505	606	497	528	598
Part-time	1,632	1,710	1,822	* 1,822	1,854
Total	2,137	2,316	2,319	* 2,350	2,452
Students enrolled (c)—					
Males	37,326	39,161	39,140	38,557	40,197
Females	18,114	19,396	20,612	25,443	28,641
Total	55,440	58,557	59,752	64,000	68,838
Average weekly student hours	137,681	* 149,282	* 132,642	142,132	148,600

(a) During 1967 much of the senior work of the Technical Education Division was transferred to The Western Australian Institute of Technology (see pages 178–81). (b) At 1 July. A teacher may occupy teaching positions at more than one school or centre; the number of individual teachers is not available. (c) A student is counted once for each course undertaken during the year. \* Revised.

#### Teacher Education

Teacher education is conducted by the Education Department at four colleges especially established for the purpose, the first at Claremont in 1902, the second at Graylands in 1955, the third (for secondary teachers) on a site adjacent to the University in 1967, and the fourth at Mount Lawley in 1970.

#### TEACHERS COLLEGES

Particulars	1965	1966	1967	1968	1969
Number of—					
Lecturers (a)	70	74	82	109	133
Students enrolled (a)—					
Departmental (b)—					
Primary course	611	790	860	993	1,137
Secondary course	797	838	911	931	1,050
On study leave	30	36	48	49	43
Private (b)	25	35	47	41	40
Total	1,463	1,699	1,866	2,014	2,270
Students graduating—					
Departmental (b)	455	555	635	695	668
Private (b)	16	22	35	29	22
Total	471	577	670	724	690

(a) At 1 August. (b) 'Departmental' students are those who have entered into an agreement to serve with the Education Department for a period after completion of the course; 'Private' students are those who have not entered into such an agreement.

The basic course is of three years' duration. The minimum requirement for entrance is a pass in English and three other subjects of the Leaving Examination, or its equivalent. Selected students may study in extended fields for periods of from three to six years to

obtain University degrees and/or other qualifications. There is also a one-year training course open to University graduates and to associates of The Western Australian Institute of Technology.

The total number of students enrolled at 1 August 1969 was 2,270. Of this total, 683 were at Claremont college, 492 at the Graylands college and 1,095 at the secondary teachers college.

### NON-GOVERNMENT SCHOOLS

The non-government schools, which are conducted mainly by religious organisations, provide education from kindergarten to the end of the secondary school course, equivalent to the final year in the government high schools. The curriculum at the primary and secondary levels is substantially the same as that in the government schools.

#### NON-GOVERNMENT SCHOOLS (a)

Particulars	At 1 August—				
	1965	1966	1967	1968	1969
NUMBER OF SCHOOLS					
Primary and secondary—					
Church of England .....	9	9	9	9	9
Methodist .....	3	3	3	3	3
Presbyterian .....	2	2	2	2	2
Roman Catholic .....	180	174	174	171	168
Other denominations .....	8	9	10	10	10
Undenominational .....	2	3	4	4	4
Kindergarten .....	168	183	193	186	209
Total .....	372	383	395	385	405

#### NUMBER OF TEACHERS (a)

Primary and secondary—					
Church of England .....	191	203	212	228	236
Methodist .....	76	88	90	99	107
Presbyterian .....	68	71	74	79	81
Roman Catholic .....	881	874	924	945	976
Other denominations .....	36	36	40	43	44
Undenominational .....	3	6	7	8	12
Kindergarten .....	306	328	371	352	374
Total .....	1,561	1,606	1,718	1,754	1,830

#### NUMBER OF PUPILS

Primary and secondary—					
Church of England .....	3,636	3,741	3,838	3,970	4,103
Methodist .....	1,527	1,631	1,731	1,782	1,859
Presbyterian .....	1,198	1,262	1,331	1,393	1,455
Roman Catholic .....	31,099	31,418	32,315	32,861	33,088
Other denominations .....	757	819	892	972	953
Undenominational .....	5,991	6,580	7,352	7,579	8,786
Total .....	44,208	45,451	47,459	48,557	50,244
Grade of education—					
Kindergarten .....	6,684	7,369	8,098	8,318	9,436
Primary .....	24,234	24,024	24,551	*24,768	24,929
Secondary—Years 1, 2 and 3 .....	10,299	10,794	11,389	*11,822	11,972
Years 4 and 5 .....	2,991	3,264	3,421	3,649	3,907
Total .....	44,208	45,451	47,459	48,557	50,244
Males .....	21,416	21,939	22,776	23,379	24,373
Females .....	22,792	23,512	24,683	25,178	25,871
Total .....	44,208	45,451	47,459	48,557	50,244

(a) Excluding persons on leave without pay and persons teaching part-time.

\* Revised.

**Kindergarten Schools.** The Education Act requires that every person conducting a kindergarten must hold a permit issued for the purpose by the Education Department. The Kindergarten Association of Western Australia, Incorporated, a voluntary organisation subsidised from government funds, maintains a training college for kindergarten teachers.

At 1 August 1969 the number of kindergartens registered with the Education Department was 209 of which 105 were affiliated with the Kindergarten Association.

Details of staff and children enrolled at the kindergartens affiliated with the Association and particulars of staff and students at the training college appear in the following table.

#### KINDERGARTEN ASSOCIATION OF WESTERN AUSTRALIA

Particulars	1965	1966	1967	1968	1969
<b>KINDERGARTEN TEACHERS COLLEGE</b>					
Number of—					
Professional staff (a) ....	4	4	5	7	7
Students—					
New enrolments ....	19	25	29	28	47
Total enrolments ....	52	64	70	77	97
Graduating ....	14	16	17	21	28
<b>KINDERGARTENS</b>					
Number of (a)—					
Kindergartens ....	71	79	83	94	106
Children enrolled ....	3,538	3,952	4,420	4,770	5,676
Staff—					
Teachers ....	80	88	92	95	111
Other ....	63	70	81	100	105

(a) At 30 June.

#### THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

The Western Australian Institute of Technology is a college of advanced education, established in terms of the *Western Australian Institute of Technology Act, 1966-1970* as an autonomous body under the control of a governing council. The main functions of the Institute, as set out in the Act, are to provide facilities for higher specialised instruction and to advance training in the various branches of technology and science; to aid the advancement, development and practical application to industry of science or any techniques; and to encourage and provide facilities for the development and improvement of tertiary education whether on a full or part-time basis to meet the needs of the community in the State.

The development of the Institute became necessary on account of the rapid growth in the numbers of students seeking education in the professional and technological fields, and the need for modern facilities and equipment. Buildings for the Institute were commenced in 1963 on a site of some 277 acres at Bentley, approximately seven miles from the Perth city centre, and the initial group of buildings was officially opened on 17 August 1966. The administration and associated buildings were officially opened on 11 October 1968.

Courses leading to the Associateship of The Western Australian Institute of Technology comprise three years' full-time study or the part-time equivalent. (In the case of Architecture the three-year full-time course is followed by two years' part-time study while in approved employment). To qualify for entry a student must have passed in at least five subjects at Leaving Examination level or at the equivalent Technical Education Division examinations of the Education Department. In some courses a student over the age of twenty-three years without the normal entrance requirements may sit for an Institute Mature Age Examination to gain admission. Qualifications held by students entering from secondary schools in other States or countries, or from other institutions, are assessed prior to admission to courses.



Associateship courses are provided in Accounting, Administration, Applied Chemistry, Applied Geology, Applied Physics, Applied Science (Biology, Chemistry, Mathematics and Physics), Architecture, Art, Art Teaching, Asian Studies, Commerce, Design, Engineering, (Civil, Communications, Electrical, Electronic, Mechanical, Mining, Production), English, Fine Art, Geophysics, Home Economics, Industrial Arts, Information Processing, Mathematics, Medical Laboratory Technology, Metallurgy, Mining Geology, Nutrition, Occupational Therapy, Pharmacy, Physiotherapy, Secretarial and Administrative Practice, Social Science, Social Work, Surveying, and Town and Regional Planning.

The Institute also offers diploma courses in Agriculture, Applied Linguistics, Educational Administration, Home Economics, Quantity Surveying, and Valuation, and post-graduate diploma courses in Administration and Applied Physics.

On 1 January 1969 the Institute took over the administration and academic control of the Royal Perth Hospital School of Occupational Therapy, the School of Physiotherapy, the School of Mines of Western Australia and Muresk Agricultural College.

### **School of Mines of Western Australia**

The School of Mines of Western Australia was established at Coolgardie in 1902 and was transferred to Kalgoorlie in the following year. Control of the School of Mines, formerly part of the Department of Mines, passed to The Western Australian Institute of Technology in January 1969.

Associateship courses are available in Engineering (Civil, Electrical, Mechanical, Mining), Metallurgy, and Mining Geology.

These are professional courses for which the entrance requirement is a pass in specified subjects at the Leaving Examination or its equivalent. The courses are arranged to occupy two years of full-time study followed by two years of part-time study, but they can for the most part be completed by wholly full-time or wholly part-time study. Senior Certificate courses, for which the entrance requirements are less stringent than those for associateship courses, are also available. These courses normally occupy three years of part-time study, with day release from industry.

Through the Kalgoorlie Metallurgical Laboratory, the School undertakes metallurgical investigations as well as assays for gold or for other metals. Free assays and mineral determinations are made available for *bona fide* prospectors.

The School has a geological museum which is open to the public and contains rocks and minerals from all over Australia and elsewhere.

The number of students enrolled in 1969 was 245.

### **Muresk Agricultural College**

Muresk Agricultural College, situated eight miles south of Northam in the Avon valley, was established by the Department of Agriculture in 1926. Control of the College was transferred to The Western Australian Institute of Technology in January 1969.

The College course, which is at tertiary level, leads to a Diploma of Agriculture. It is of two years' duration and is fully residential. The entrance requirement is a pass in four or more subjects at Leaving Examination level, preference being given to those applicants who have passed in English, Chemistry, Physics and a unit of Mathematics.

The course is designed to give a sound scientific, technical and managerial training suitable for those wishing to become farm owners or managers, or to work in industries servicing agriculture. The subjects studied are Plant Sciences and Husbandry, Animal Sciences and Husbandry, Agricultural Engineering, Farm Management, Soil Science, Humanities and Practical Farm Work. Instruction is given by means of lectures, assignments, laboratory and workshop practical work, demonstrations, tutorials, day tours to farms and research stations, extended tours into the agricultural areas, and practical farming on the College estate.

The estate of 4,000 acres is devoted to mixed farming and provides the students with an opportunity to gain a considerable amount of practical experience by observation,

demonstration and actual participation in a wide variety of farming activities. Use is made of the College facilities for various research projects. High quality stock from the College's herds and flocks is available to Western Australian farmers.

From time to time short courses are held at the College. These include in-service training schools for personnel of the Department of Agriculture and for field and service staff of agricultural firms.

The number of students enrolled at the College in 1969 was fifty-seven.

### Teachers, Students and Awards Conferred

The following table gives particulars of teaching staff in each of the years 1967 to 1969. The number of associateships and diplomas conferred is also shown.

#### THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

Particulars	1967	1968	1969
<b>NUMBER OF TEACHING STAFF (a)</b>			
Full-time—			
School and department heads	12	13	16
Senior lecturers	14	31	37
Lecturers	118	133	149
Assistant lecturers	39	15	16
Tutors, demonstrators	39	60	85
Total, Full-time	183	252	303
Part-time (b)—			
Teaching staff	n.a.	13	30
Tutors, demonstrators	n.a.	2	2
<b>NUMBER OF STUDENTS (c)</b>			
Full-time	1,224	1,558	1,680
Part-time	1,609	1,931	2,565
Correspondence	....	223	334
Total	2,833	3,712	4,579
Males	n.a.	3,119	3,776
Females	n.a.	593	803
Total	2,833	3,712	4,579
<b>ASSOCIATESHIPS AND DIPLOMAS CONFERRED</b>			
School or department—			
Accounting and business studies	10	17	13
Administrative studies	8	30	31
Agriculture	....	....	17
Architecture	15	41	21
Art and design	12	7	13
Chemistry	14	17	14
Engineering—			
Civil	26	25	32
Electrical	13	16	16
Mechanical	20	10	16
Home economics	7	16	18
Mathematics	....	1	5
Mines	....	....	7
Pharmacy	18	29	46
Physics	20	19	22
Therapy	....	....	31
General studies	3	25	29
Total	166	253	331
Males	n.a.	225	261
Females	n.a.	28	70
Total	166	253	331

n.a. denotes 'not available'.

(a) At 30 June. (b) Expressed on the basis of full-time staff equivalents. (c) Figures for 1967 and 1968 are as at 30 June; those for 1969 are as at 30 September.

**Finance**

The following table relates to income and expenditure of The Western Australian Institute of Technology in each year from 1967 to 1969.

**THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY—FINANCE**  
(\$'000)

Particulars	1967	1968	1969
<b>INCOME</b>			
Income for specific capital purposes (a)—			
Commonwealth Government grants ....	281	697	1,765
State Government grants ....	281	697	1,765
Total ....	562	1,394	3,530
Income for other purposes—			
Commonwealth Government grants ....	639	883	1,395
State Government grants ....	1,129	1,485	2,233
Donations and endowments ....	6	45	54
Student fees (b) ....	53	153	289
Other ....	...	5	59
Total ....	1,828	2,570	4,030
<b>TOTAL INCOME</b> ....	<b>2,390</b>	<b>3,964</b>	<b>7,560</b>
<b>EXPENDITURE</b>			
Salaries and wages ....	1,239	2,047	2,595
Library ....	57	29	48
Buildings, grounds and equipment....	674	1,420	3,580
Minor equipment ....	195	62	94
Sundry auxiliary expenditure ....	218	361	1,203
<b>TOTAL EXPENDITURE</b> ....	<b>2,383</b>	<b>3,918</b>	<b>7,520</b>

(a) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment. (b) Excludes fees collected on behalf of student organisations.

**THE UNIVERSITY OF WESTERN AUSTRALIA**

University education first became available in Western Australia in 1898, with the formation of the Extension Committee of the University of Adelaide by which facilities were provided for external studies in courses for degrees in Arts and Science. The first step towards the establishment of a university in Western Australia was taken in 1904, when a University Endowment Act providing for the incorporation of a trust to administer funds for the purpose was passed by the State Parliament. Following a favourable report made by a Royal Commission under the chairmanship of Dr (later Sir Winthrop) J. W. Hackett, the University was established by the University of Western Australia Act of 1911. Teaching began in 1913 in subjects related to the Faculties of Arts, Science and Engineering. Additional Faculties established since that time are those of Law (1927), Agriculture (1936), Dental Science (1946), Education (1947), Economics (1954), Medicine (1956) and Architecture (1966). The Faculty of Economics was reconstituted as the Faculty of Economics and Commerce in 1961.

**Matriculation Requirements**

Under revised regulations introduced in 1969, a student wishing to matriculate at the University must pass the Leaving Examination in English and four other subjects selected from specified groups. All these subjects must be passed at leaving level, and three subjects other than English at matriculation level. The matriculation level examinations require a student 'to give more evidence of ability and experience in study in depth'. A candidate must pass all these examinations in the same year, or pass all the leaving level examinations in one year and the matriculation level examinations in the following year. A part-time student is allowed three years to complete the requirements.

Matriculant status may be granted to an applicant who has satisfied the examination requirements of any other university in Australia, New Zealand or the United Kingdom qualifying him for matriculation.

The regulations provide for a Mature Age Examination enabling the provisional admission to some University courses of persons over the age of twenty-one years who have not otherwise qualified for matriculation. Candidates take certain papers in the Leaving Examination as follows : English at leaving level ; one other subject selected from a specified list at both leaving and matriculation levels. A pass in the Mature Age Examination is recognised as qualifying for provisional admission to the Faculty of Arts (for Bachelor of Arts and Bachelor of Psychology degree courses) and to the Faculties of Education and Economics and Commerce. Full matriculation status is granted on successful completion of the first academic year, *i.e.* a pass in four first-year units of the course of study.

Provision is made for admission to some Faculties of persons holding certain certificates or diplomas or other specified qualifications.

### Degrees and Diplomas

Degrees are granted in the Faculties of Arts, Law, Education, Economics and Commerce, Science, Engineering, Agriculture, Dental Science, Medicine and Architecture.

Courses for the degrees of Bachelor of Arts, Bachelor of Economics, Bachelor of Commerce and Bachelor of Science extend over a period of not less than three years; those for the degrees of Bachelor of Music, Bachelor of Psychology, Bachelor of Education, Bachelor of Engineering and Bachelor of Science in Agriculture, over not less than four years; and those for the degrees of Bachelor of Dental Science and Bachelor of Architecture over not less than five years. The course for the degree of Bachelor of Laws extends over a period of not less than four years, following successful completion of the first year of a course in any other faculty. Honours degree courses in Arts, Music, Psychology, Economics, Commerce and Science are usually of four years' duration, and five years in Education. The course in the Faculty of Medicine for the degrees of Bachelor of Medicine and Bachelor of Surgery extends over six years, and that for the degree of Bachelor of Medical Science over four years or five years according to the subjects taken. The degrees of Master of Arts and Doctor of Letters, Master of Music and Doctor of Music, Master of Psychology, Master of Laws and Doctor of Laws, Master of Education, Master of Economics, Master of Commerce, Master of Science and Doctor of Science, Master of Engineering Science, Master of Engineering and Doctor of Engineering, Master of Science in Agriculture and Doctor of Science in Agriculture, Master of Dental Science and Doctor of Dental Science, Master of Surgery and Doctor of Medicine, Master of Architecture, and Master of Building Science, are conferred by the University. The degree of Doctor of Philosophy is also given for research in all faculties.

Courses for diplomas are also offered by various faculties. Details of diplomas granted in the five years ended 1969 are given in the table on page 184 where particulars of the number of degrees conferred are also shown.

### University Government

The original Act provided that the Senate and Convocation should constitute the governing authority with power to make statutes for 'the management, good government and discipline of the University'.

The Senate consists of twenty-five members, of whom six are appointed by the Governor, six are elected by Convocation, four are elected by the full-time teaching staff, three are *ex officio* members (the Vice-Chancellor of the University, two are elected by students, the Director-General of Education and the President of the Guild of Undergraduates), and four are co-opted members. Convocation consists of graduates of the University and such other persons as are eligible for membership under the provisions of the University of Western Australia Act.

Since an amendment to the Act in 1944 the Senate alone has been the governing authority and is responsible, subject to the Act and the statutes, for the entire control and management of the University. Statutes originate in the Senate and are submitted to Convocation for its consideration, and although Convocation may suggest amendments the Senate is not bound to accept them. The Act requires that statutes shall be submitted to the Governor for approval, after which they have the force of law.

The Chancellor is the titular head of the University. He is elected annually by the Senate from among its members and presides over its meetings. The Vice-Chancellor is the chief executive officer of the University and is appointed by the Senate for a period not exceeding ten years, at the end of which term he is eligible for reappointment. At meetings of Convocation the chairman is the Warden who is elected annually by Convocation from among its members.

The Guild of Undergraduates is constituted under the Act as an association of undergraduates 'for furthering of their common interests, and shall be the recognised means of communication between the undergraduates and the governing authority of the University'. The government of the student body is vested in the Guild Council to which the Senate appoints two of its own members, the remaining members of the Council being elected in accordance with regulations made by the Guild.

### **Student Fees and Scholarships**

The Royal Commission appointed to inquire into the establishment of a University recommended that teaching should be free and suggested that 'if fees are found to be necessary, they should be on the lowest possible scale'. Until 1962 lecture fees were not charged to students normally resident in Australia, except those in the Faculty of Medicine, where tuition fees were payable in the second and later years, and those enrolled at the Western Australian College of Dental Science, an institution affiliated with the University, who paid lecture fees to the College. All students paid a 'faculty service charge' designed to cover such items as the use of the library, annual examination fees, the use of laboratory equipment, and the lecture synopses provided in some courses. To assist in meeting the increasing costs of operation resulting from a rapidly growing student population and to enable the University to take full advantage of financial aid available under Commonwealth legislation, a system of annual 'enrolment fees' was introduced in 1962. The current tuition fees are based on an annual course fee for all full-time bachelor degree courses. Part-time students' fees are assessed proportionately, according to the number and type of subjects to be taken during the year. The fees for higher degree students are also related to the basic scale. Subscriptions to the Guild of Undergraduates and to certain faculty associations are payable by all students enrolled for one or more full units towards a bachelor degree.

Financial assistance is available to students under the Commonwealth University Scholarship Scheme. Awards are made on merit and, in addition to having their compulsory fees paid, scholarship holders may receive a living allowance which is subject to a means test. Hackett Bursaries are offered each year for students of merit whose means make it difficult for them to undertake or continue a full-time undergraduate course. The State Government provides a number of University Exhibitions for competition among candidates at the Leaving Examination. In addition, the University is able to grant a limited number of fees bursaries each year from special endowment funds.

As well as the normal awards under the Commonwealth University Scholarship Scheme, there is provision in the scheme for financial assistance for post-graduate studies in the form of a living allowance, which is not subject to a means test, and payment of fees. The University also provides, from its own funds, research studentships for post-graduate study which are competed for by students holding no other award and having an Honours degree of second class (Division A), or higher, standard. Hackett Scholarships, tenable at the University of Western Australia or in special circumstances at other recognised institutions in Australia, are open to graduates of the University. Graduates may also

apply for Hackett Studentships which, in addition to other financial benefits, may carry a travel grant where the Student elects to study overseas or in another State. Some large private industrial concerns also make annual awards for study at post-graduate level.

As a contribution towards University fees, the State Government provides financial assistance of \$102 per year for a full-time student, permanently domiciled in the State, who is proceeding to a first degree and who is not the holder of a scholarship or bursary of a value equal to, or greater than, half the amount of the tuition fees.

### Teachers, Students, Degrees Conferred and Diplomas Granted

The following table gives particulars of teaching staff and students at 31 July in each of the years from 1965 to 1969. The numbers of degrees conferred and diplomas granted during each of these years are also shown. Information in greater detail is available from the publications *University Statistics: Part 1—Students and Degrees Conferred* and *Part 2—Staff and Libraries*, which are issued annually by the Commonwealth Statistician, Canberra.

#### UNIVERSITY OF WESTERN AUSTRALIA

Particulars							1965	1966	1967	1968	1969
NUMBER OF TEACHING STAFF											
Full-time—											
Professors	....	....	....	....	....	....	44	44	47	53	54
Readers	....	....	....	....	....	....	37	38	41	45	49
Senior lecturers	....	....	....	....	....	....	110	111	119	122	130
Lecturers	....	....	....	....	....	....	99	95	105	115	112
Tutors, demonstrators	....	....	....	....	....	....	31	67	58	68	84
Total, Full-time	....	....	....	....	....	....	321	355	370	403	429
Part-time (a)—											
Lecturers	....	....	....	....	....	....	38	43	30	32	22
Graduate assistants, tutors, demonstrators	....	....	....	....	....	....	341	384	355	468	490
NUMBER OF STUDENTS											
Internal, full-time	....	....	....	....	....	....	2,971	3,362	3,796	4,079	4,407
Internal, part-time	....	....	....	....	....	....	1,681	1,814	1,926	2,178	2,430
External	....	....	....	....	....	....	370	323	305	310	314
Total	....	....	....	....	....	....	5,022	5,499	6,027	6,567	7,151
Males							3,805	4,084	4,402	4,732	5,065
Females							1,217	1,415	1,625	1,835	2,086
Total	....	....	....	....	....	....	5,022	5,499	6,027	6,567	7,151
DEGREES CONFERRED (b) AND DIPLOMAS GRANTED											
Degrees conferred—											
Agriculture	....	....	....	....	....	....	30	23	26	31	20
Architecture	....	....	....	....	....	....	....	....	....	....	8
Arts	....	....	....	....	....	....	223	215	259	262	282
Commerce	....	....	....	....	....	....	8	20	24	31	41
Dental Science	....	....	....	....	....	....	10	11	13	9	22
Economics	....	....	....	....	....	....	32	40	47	32	44
Education	....	....	....	....	....	....	19	48	42	43	31
Engineering	....	....	....	....	....	....	39	38	38	41	95
Law	....	....	....	....	....	....	25	26	36	23	38
Medicine	....	....	....	....	....	....	40	41	39	45	53
Music	....	....	....	....	....	....	1	2	3	2	1
Psychology	....	....	....	....	....	....	9	11	13	7	24
Science	....	....	....	....	....	....	160	163	168	179	204
Total	....	....	....	....	....	....	596	638	708	705	863
Diplomas granted—											
Clinical Psychology	....	....	....	....	....	....	3	1	....	....	....
Child and Educational Psychology	....	....	....	....	....	....	1	....	....	....	....
Education	....	....	....	....	....	....	64	79	66	102	102
Social Work	....	....	....	....	....	....	....	....	6	6	9
Numerical Analysis and Automatic Computing	....	....	....	....	....	....	....	1	3	5	5
Total	....	....	....	....	....	....	68	81	75	113	116

(a) Figures represent units of 100 hours of teaching time per annum.

(b) Excluding honorary degrees.

## Tuition

In addition to the normal lectures and tutorials for full-time students, courses for part-time students are offered in the Faculties of Arts, Education, and Economics and Commerce. Certain subjects may be taken at institutions affiliated with the University. These are The Western Australian Institute of Technology, the Secondary Teachers College, Claremont Teachers College, Graylands Teachers College and Mount Lawley Teachers College.

Residents of Western Australia living outside the metropolitan area are able to enrol as external students in the Faculties of Arts, Education, and Economics and Commerce.

## Colleges and Hall of Residence

There are five residential colleges within the University. For men students, Saint George's College is conducted by the Church of England, Saint Thomas More College by the Roman Catholic Church and Kingswood College by the Methodist Church. Saint Catherine's College is an undenominational college for women students. A fifth college, Saint Columba, opened in 1971. It is conducted jointly by the Presbyterian Church and the Congregational Church for the accommodation of men and women students.

Currie Hall is an undenominational hall of residence for men and women students.

## Finance

The following table relates to the income and expenditure of the University of Western Australia in each year from 1965 to 1969. Information in greater detail is available in the publication *University Statistics: Part 3—Finance*, issued annually by the Commonwealth Statistician, Canberra.

### UNIVERSITY OF WESTERN AUSTRALIA—FINANCE (£'000)

Particulars	1965	1966	1967	1968	1969
<b>INCOME</b>					
Income for specific capital purposes (a)—					
Commonwealth Government grants	909	1,226	476	509	457
State Government grants	909	1,237	436	509	1,850
Total	1,818	2,463	912	1,018	2,307
Income for other purposes—					
Commonwealth Government grants	2,504	2,782	3,215	3,386	3,467
State Government grants	3,201	3,080	3,363	3,842	4,022
Donations and endowments	491	638	681	865	936
Student fees (b)	849	1,155	1,253	1,423	1,658
Other	648	634	723	852	885
Total	7,693	8,288	9,236	10,368	10,968
<b>TOTAL INCOME</b>	<b>9,511</b>	<b>10,751</b>	<b>10,148</b>	<b>11,386</b>	<b>13,276</b>
<b>EXPENDITURE</b>					
Teaching and research	5,545	5,528	6,303	6,693	7,184
Administration and general overhead	570	626	702	806	881
Libraries	350	402	416	480	554
Buildings, premises, grounds	2,038	2,249	2,046	2,098	2,121
Sundry auxiliary expenditure	753	765	790	992	1,007
<b>TOTAL EXPENDITURE</b>	<b>9,257</b>	<b>9,571</b>	<b>10,258</b>	<b>11,069</b>	<b>11,747</b>

(a) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment. (b) Excludes fees collected on behalf of student organisations.

## Public Examinations Board

The Public Examinations Board, which is comprised of representatives of the University, the Education Department, and the non-government secondary schools, is constituted by University statute for the purpose of conducting the Junior and Leaving Examinations.

The Junior Examination is normally taken by pupils at the end of the third year of the secondary school course. The Leaving Examination is the final examination in the Western Australian secondary education system.

The Board may also consider matters relating to the conditions for matriculation and for admission to courses for degrees or diplomas, and may make recommendations to the Boards or Faculties concerned. Reference to current matriculation requirements will be found on pages 181-2.

### **Adult Education and Extension Committee**

The Adult Education and Extension Committee was established by the Senate of the University in 1968 as a result of the reorganisation of the former Adult Education Board which had been created by the University in 1928. The policies of the Committee are implemented by the Director of Adult Education and by the Head of Extension. The headquarters of the organisation are at the University.

Adult Education classes are conducted at city premises in Perth as well as at the University, and various activities in the metropolitan and country areas are arranged. These are generally non-vocational in character. During the year several series of classes, lectures and discussions are conducted, and a Summer School is held at the University each year.

The Extension Service is responsible mainly for post-graduate and refresher courses as well as certain cultural activities. It works in close liaison with University departments and faculties. The Extension Service is engaged principally in conducting conferences, symposia and seminars. Members of its staff are also involved during the summer months in work connected with the annual Festival of Perth.

## **MURDOCH UNIVERSITY**

It was announced in August 1969 that a second university would be established in Western Australia. The new university is to be named Murdoch University in honour of the late Professor Sir Walter Murdoch, K.C.M.G., C.B.E., M.A., Hon. D.Litt., Emeritus Professor of English in the University of Western Australia. Walter Logie Forbes Murdoch was one of the original professors when the University was opened in 1913. He retired from the Chair of English in 1939, and was Pro-Chancellor of the University from 1941 to 1943, and Chancellor from 1943 to 1948. He died at Perth on 30 July 1970 at the age of 95 years.

Murdoch University is to be established on a site of 400 acres south of the Swan River about eight miles from the Perth city centre and four miles from Fremantle. It is anticipated that it will open in 1974 and will provide for both graduate and undergraduate studies in the basic humanities and sciences. It is to have a School of Veterinary Science as its first professorial school.

## **STATE GOVERNMENT EXPENDITURE ON EDUCATION**

The following table shows the amounts expended on education from State Government funds during the five-year period ended 30 June 1969.

Payments from the Consolidated Revenue Fund relate to recurrent expenditure on such items as departmental administration, teachers' salaries, transport of school children, scholarships and allowances, maintenance of buildings, assistance to private schools, and grants to the University of Western Australia.

Expenditure from the General Loan Fund is principally on capital works which include buildings at The Western Australian Institute of Technology, primary schools, high schools and technical schools. Purchases of furniture and equipment are also included.



STATE GOVERNMENT EXPENDITURE ON EDUCATION  
(S'000)

Classification	1964-65	1965-66	1966-67	1967-68	1968-69
<b>CONSOLIDATED REVENUE FUND</b>					
Administration and general	1,222	1,374	1,277	1,383	1,461
Primary	14,273	16,196	17,524	19,814	22,087
Secondary	7,744	9,386	10,166	12,055	14,314
Technical	3,731	4,594	5,230	5,933	7,094
Agricultural	277	284	339	406	417
University	*3,065	*3,385	*3,445	*4,038	4,095
Training of teachers	1,896	2,268	2,506	2,901	3,565
Transport of school children	2,611	2,673	3,044	3,156	3,299
Other	75	44	42	37	20
<b>Total</b>	<b>*34,894</b>	<b>*40,203</b>	<b>*43,573</b>	<b>*49,722</b>	<b>56,352</b>
<b>GENERAL LOAN FUND</b>					
Primary	*2,747	*3,347	*3,425	3,946	5,713
Secondary	2,260	3,897	4,191	3,447	2,883
Technical	1,823	279	726	1,526	1,042
Agricultural	34	54	12	25	13
University	450	159	1,050	266	466
Training of teachers	4	33	....	....	8
Other	272	318	450	580	507
<b>Total</b>	<b>*7,590</b>	<b>*8,087</b>	<b>*9,854</b>	<b>9,791</b>	<b>10,632</b>

\* Revised.

## COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION

Although education is primarily the responsibility of the States, the Commonwealth Government has instituted a number of measures of direct assistance to students and educational institutions.

## Scholarships and Awards

The Commonwealth Department of Education and Science administers five major scholarship schemes. The Postgraduate Award, University Scholarship and Advanced Education Scholarship schemes come within the authority of the Commonwealth Scholarships Board, which provides advice on the administration of the schemes and on policy matters connected with them. The Commonwealth Secondary Scholarship Scheme, which came into operation at the beginning of 1965, is administered by the Department of Education and Science, with the co-operation of the State education authorities in selection examination arrangements. The Commonwealth Technical Scholarship Scheme also came into operation at the beginning of 1965. Detailed information on these schemes is contained in the annual reports of the Commonwealth Scholarships Board and the Department of Education and Science.

COMMONWEALTH SCHOLARSHIPS AND AWARDS  
WESTERN AUSTRALIA

Scheme	Number of—						Expenditure (S'000)		
	Scholarships awarded			Scholars in training at 30 June—					
	1967	1968	1969	1967	1968	1969	1966-67	1967-68	1968-69
Postgraduate Award	29	25	29	59	63	79	113	129	111
University Scholarship	626	651	638	1,441	1,641	1,749	885	919	1,110
Advanced Education Scholarship	77	89	126	177	220	284	53	71	108
Secondary Scholarship	736	730	745	1,392	1,420	1,435	448	459	459
Technical Scholarship	146	216	203	217	247	266	53	76	79
<b>Total</b>	<b>1,614</b>	<b>1,711</b>	<b>1,741</b>	<b>3,286</b>	<b>3,591</b>	<b>3,813</b>	<b>1,552</b>	<b>1,654</b>	<b>1,867</b>

### Universities

Following a report submitted by a committee of inquiry appointed to report on university finances and requirements, the Commonwealth, since 1951, has made matched grants to the States for recurrent expenditure on university purposes. Since 1958 the Commonwealth has also assisted with the capital needs of the universities for building projects and for equipment, and has provided grants for the building programmes of residential colleges affiliated with universities.

Since 1961, Commonwealth assistance to the States in respect of the recurrent expenditures of universities has been on the basis of \$1 of Commonwealth money for every \$1.85 of income received by a university from fees and State grants. Grants in respect of capital expenditures are provided on a \$1 for \$1 basis from the Commonwealth and the State.

In 1959, following the Report of the Committee on Australian Universities, the Commonwealth Government established the Australian Universities Commission under the *Australian Universities Commission Act 1959*. The Commission's principal functions are to advise on financial assistance to Commonwealth universities and to States in relation to their universities and also on the balanced development of Australian universities. Commonwealth financial assistance grants, based on the Commission's recommendations, have been authorised by a series of States Grants (Universities) Acts and Universities (Financial Assistance) Acts.

### Colleges of Advanced Education

Under the provisions of a series of States Grants (Advanced Education) Acts, the first of which was passed in 1965, the Commonwealth gives financial assistance to the States for the development of colleges of advanced education. These are institutions which provide mainly tertiary education and training with a vocational emphasis, as distinct from the academic education provided by the universities. The Commonwealth Advisory Committee on Advanced Education was established in 1965 to advise the Commonwealth Government on the development of the colleges.

The grants made to a State are conditional on the provision by the State of \$1 for every \$1 of Commonwealth money for capital purposes, and \$1.85 of State money and student fees combined for every \$1 of Commonwealth money for recurrent purposes.

### Teachers Colleges

The *States Grants (Teachers Colleges) Act 1967* provides for grants to the States during the three years to 30 June 1970 by way of financial assistance for approved building projects in connection with teachers colleges. A condition of the grant to a State is that not less than 10 per cent of the student places attributable to the expenditure of the grant shall be available to 'private' students, *i.e.* those who have not entered into an agreement or bond in relation to service with a State education authority for a period after completion of the course.

The *States Grants (Teachers Colleges) Act 1970* provides for grants to the States during the period from 1 July 1970 to 30 June 1973. The total amount authorised by the Act is \$30 million, of which Western Australia's share is \$3 million.

### Pre-school Teachers Colleges

The *States Grants (Pre-school Teachers Colleges) Act 1968* provides financial assistance to the States for the purposes of building projects in connection with pre-school teachers colleges. During the three-year period ending 30 June 1971 an amount not exceeding \$2.5 million is to be distributed among the States, Western Australia's share being \$175,000.

### Science Laboratories and Equipment

The States Grants (Science Laboratories) Acts authorise financial assistance for the provision of science laboratories and equipment for use in the teaching of science at secondary level in government and non-government schools.

### School Libraries

The *States Grants (Secondary Schools Libraries) Act* 1968 provides financial assistance to the States for libraries at secondary schools and for the acquisition of library material and equipment for use in such libraries. During the three-year period ending 31 December 1971 an amount not exceeding \$27 million is to be distributed among the States, Western Australia's share being \$2,031,600.

### Technical Training

Under the provisions of the States Grants (Technical Training) Acts, grants are made to the States as a contribution towards the cost of buildings and equipment for use in trade training and technical education in government institutions.

### Recurrent Expenditure of Non-government Schools

The *States Grants (Independent Schools) Act* 1969 provides moneys for the States to be paid to non-government schools as a contribution towards the recurrent (*i.e.* other than capital) expenditure incurred by those schools. Payment is made in the form of a subsidy of \$35 for each primary pupil and \$50 for each secondary pupil enrolled for full-time education at the schools census date in August of each year. The Act came into operation on 25 October 1969, and payments to Western Australia in the period to 30 June 1970 amounted to \$862,000.

### Research

The States Grants (Research) Acts authorise the provision of financial assistance to the States in support of research projects of particular merit, research being defined as 'systematic investigations in some branch of science or learning'. The Australian Research Grants Committee, established by the Commonwealth Government in 1965, evaluates research projects and makes recommendations concerning the selection of projects and the allocation of funds.

### Financial Summary

The following table shows the amounts received during the five years to 30 June 1970 in the form of Commonwealth financial assistance for education in Western Australia.

COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION  
WESTERN AUSTRALIA  
(\$'000)

Purpose of assistance	1965-66	1966-67	1967-68	1968-69	1969-70
Universities—					
For capital expenditure	901	1,160	567	734	2,048
For recurrent expenditure	2,152	2,306	2,652	2,833	3,281
Total	3,053	3,466	3,219	3,567	5,329
Colleges of advanced education—					
For capital expenditure	232	457	1,304	874	1,050
For recurrent expenditure	....	363	776	912	1,929
Total	232	820	2,080	1,786	2,979
Teachers colleges	....	....	1,817	582	201
Pre-school teachers colleges	....	....	....	14	161
Science laboratories and equipment	502	899	912	921	921
School libraries	....	....	....	168	596
Technical training	269	551	1,323	437	957
Non-government schools—					
For recurrent expenditure	....	....	....	....	862
Research	142	155	257	276	323
GRAND TOTAL	4,198	5,891	9,608	7,751	12,329

*Chapter V—continued*  
**Part 2—Culture and Recreation**  
**PUBLIC LIBRARIES**

**The Library Board of Western Australia**

The Library Board of Western Australia, which is constituted under the provisions of the *Library Board of Western Australia Act, 1951-1965*, is responsible for all forms of public library services which are financed either wholly or in part from State funds. The Board consists of thirteen members. The Director-General of Education and the Director of Adult Education are *ex officio* members. Of the remaining eleven members, who are appointed by the Governor, five represent local government interests, five are nominated by the Minister for Education and one by the Library Association of Australia, Western Australian Branch.

The Board was set up as an independent statutory body in 1952. Its functions are to encourage and assist local authorities to establish public libraries and to co-ordinate those libraries into a State-wide system, to administer funds made available by the Government for this purpose, to provide for the training of librarians and library assistants and to advise the Minister for Education and participating bodies on matters of general policy relating to libraries. Under the provisions of the *Acts Amendment (Libraries) Act, 1955*, the administration of the Public Library of Western Australia was transferred to the Board on 1 December 1955 and its name changed to The State Library of Western Australia. The Central Music Library was inaugurated in 1965.

**THE LIBRARY BOARD OF WESTERN AUSTRALIA**

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Expenditure—</b>					
Salaries and wages .....	\$ 226,200	256,914	274,556	305,595	353,303
Books, periodicals and binding .....	\$ 258,300	307,513	352,649	416,065	484,201
Other .....	\$ 46,100	49,792	65,003	67,359	110,863
<b>Total .....</b>	<b>\$ 530,600</b>	<b>614,219</b>	<b>692,208</b>	<b>789,019</b>	<b>948,367</b>
<b>Number of—</b>					
<b>Staff (a)—</b>					
Qualified librarians .....	22	24	24	25	22
Student librarians .....	19	16	21	25	20
Other .....	50	52	58	58	75
<b>Total .....</b>	<b>91</b>	<b>92</b>	<b>103</b>	<b>108</b>	<b>117</b>
<b>Associated public libraries (a)—</b>					
Perth Statistical Division .....	22	24	25	27	27
Other Statistical Divisions .....	75	78	86	98	99
<b>Total .....</b>	<b>97</b>	<b>102</b>	<b>111</b>	<b>125</b>	<b>126</b>
<b>Books—</b>					
<b>Reference library stock—</b>					
Bound volumes (a) .....	223,430	229,943	236,230	242,664	290,660
Periodical and serial titles received .....	8,417	8,266	6,368	7,787	8,143
<b>Circulation library stock—</b>					
Books processed for circulation .....	71,966	74,420	100,816	103,276	102,366
Net additions to stock .....	41,966	40,325	69,622	57,204	46,054
Stock at 30 June .....	496,432	536,757	606,379	657,149	703,203
Received and dispatched in the exchange programme with local libraries .....	214,872	207,352	223,864	270,862	298,322
Inter-library requests received .....	33,396	36,914	45,306	55,441	61,047
<b>Central Music Library stock (a) —</b>					
<b>Number of—</b>					
Books .....	2,954	3,200	3,665	3,900	4,175
Musical scores .....	9,435	11,032	12,723	11,999	12,731

(a) At 30 June.

The books in all public libraries in the State are supplied by the Board and remain its property. A fixed proportion, depending on its size, of the stock of every library is exchanged at least every two months. All books are catalogued and fully prepared for use before being issued to public libraries and the Board maintains all the central stock records.

A catalogue in book-form of the books, arranged by subjects, in all libraries is published annually by the Board and supplied to all public libraries throughout the State. This facilitates access by library users to the whole stock of the Board, through any library. Inter-library loans both between public libraries and between other types of library in the State are organised through the Request and Information Service. The State Bibliographical Centre, housed in the State Library building, is also available to the public. It is equipped with catalogues of the State Library and all other libraries in the service, a union catalogue of books and serials in non-public libraries in the State and a world-wide range of printed bibliographies, indexes to periodicals and subject guides.

The library service of Western Australia thus consists of the State Library, which functions as the reference division of the service, the Central Music Library, and a number of independent public libraries which are jointly supported by local authorities and the Board.

### **The State Library of Western Australia**

The original Library was established in 1887 as the Victoria Public Library in commemoration of Queen Victoria's Golden Jubilee. It became known later as the Public Library of Western Australia and in 1955 as The State Library of Western Australia.

In addition to providing reference library facilities for the metropolitan area, its service extends throughout the State, through the agency of a local public library wherever possible but also by post direct to country inquirers not in contact with a local library.

It is divided into five specialist subject units, comprising four libraries and one centre. The J. S. Battye Library of West Australian History was developed from the former Archives Branch. All material relating to Western Australia, including the State archives, has been concentrated in this library. The other libraries are The Library of Business, Science and Technology, The Library of Social Sciences, Philosophy and Religion and The Library of Literature and the Arts. The Information Centre is equipped with current Australian and overseas telephone and trade directories, business guides, commercial publications and a wide variety of similar quick reference material. The Centre is designed principally to provide immediate answers to inquiries, mainly in the commercial field. Current newspapers, which include all those published in Western Australia, the main ones from other Australian States and a representative selection from overseas countries, are available for reference in the Information Centre.

The State Library is fully equipped with micro-film and photo-copy apparatus and copies of material are available on payment of an appropriate fee.

The Central Music Library, situated in the State Library building, lends musical scores to persons or bodies throughout the State but lends books on music only through other libraries. It also provides a reference service in the field of music.

### **Local Public Libraries**

At 30 June 1970 there were 126 local public libraries associated with the Library Board's service. The local government authorities conducting these libraries provide accommodation and staff, while the Library Board provides all the books and bibliographical services. The administrative independence of the local libraries is secured under the provisions of the *Library Board of Western Australia Act, 1951-1965*. Apart from exercising a statutory obligation in respect of the expenditure of State subsidies, the Board takes no direct part in the administration of local public libraries. If the Board's expenditure in respect of a local library exceeds that of the local authority, an amount to equalise the expenditure is payable to the Board by the local authority. Books are pro-

vided on a minimum basis of one volume per head of the population of the district concerned and all non-fiction books in public libraries throughout the State are made available on request to the Board at any library associated with its library service.

### THE WESTERN AUSTRALIAN MUSEUM

The Western Australian Museum has developed from two earlier collections. One of these, the museum of the Swan River Mechanics' Institute, was founded by public subscription in 1860, and the other, the Geological Museum at Fremantle, was started in 1881. In 1889 the contents of the Geological Museum were moved to the former Perth Gaol (which is still part of the Western Australian Museum) and a Curator was appointed in 1891. In the following year the museum of the Swan River Mechanics' Institute was purchased, and the collections combined to form the Public Museum which, in 1897, became known as the Western Australian Museum.

Under the provisions of the *Museum Act, 1969* The Western Australian Museum is governed by seven Trustees appointed by the Governor. The staff includes a Director, a Deputy Director, two Senior Curators, seven Curators and other professional and technical staff, and is grouped functionally within Divisions of Natural Science and Human Studies and a small administrative and service unit.

The work of the Museum relates mainly to natural sciences and human studies. It contains collections devoted to zoology, palaeontology, meteorites, archaeology, anthropology, history, technology and military exhibits. Emphasis in both display and research is on the fauna and the human population, past and present, of Western Australia. There is an extensive scientific library which also houses the library of the Royal Society of Western Australia. Research within the Division of Natural Sciences is related specifically to the marine fauna, mammals, birds, reptiles, insects and fossils of the State. The Division of Human Studies is concerned with prehistoric archaeology and art, Aboriginal material culture, colonial history, maritime history, underwater archaeology, industrial and agrarian technology, and arms and armour.

The Museum is an active educational instrument. Members of the scientific staff lecture in Adult Education programmes and in the University departments. Public lectures are held and there is also an extensive programme of nature study for children. A children's centre, staffed by a Museum teacher provided by the Education Department, is open during school holidays. Children voluntarily participate in general knowledge tests and other exercises designed for vacation activities. Regular classes are held during school terms, and special visits are made by children from schools not included in the regular series.

The Museum Act specifically vests in the Museum six ships wrecked off the Western Australian coast in the 17th and 18th centuries. It also makes provision for the vesting of any other ship abandoned, wrecked or stranded before 1900 and lying in territorial waters of the State, if the Director is of the opinion that the wreck is of historical, scientific, archaeological, educational or other special national or local interest. It is further provided that every meteorite situated on land vested in the Crown shall be the property of the Museum.

A historical and maritime museum is established at Fremantle as a branch of The Western Australian Museum. It was officially opened by the Governor-General in October 1970.

In connection with its work of education, research and conservation, the Museum is often called upon to act in an advisory capacity to Government departments. In particular, senior staff serve on committees formed for the purpose of protection of native fauna and the preservation of Aboriginal sites and artefacts.

The Museum serves as a centre for associations with interests in natural history and human studies. The Royal Society of Western Australia and the Astronomical Society hold regular meetings at the Museum. The Museum is assisted in certain fields by Honorary Museum Associates, some of whom serve on the four Advisory Committees,

the Meteorite Advisory Committee, the Fremantle Museum Advisory Committee, the Aboriginal Cultural Material Advisory Committee, and the Joint Committee on Maritime History and Archaeology.

## THE WESTERN AUSTRALIAN MUSEUM

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Expenditure—					
Salaries and wages .....	\$ 116,474	137,701	159,318	184,820	224,983
Other .....	\$ 57,154	60,016	62,063	80,477	133,482
Total .....	\$ 173,628	197,717	221,381	265,297	358,465
Square feet of—					
Display area (a) .....	16,750	16,750	6,832	6,832	6,832
Storage area (a) .....	11,400	11,400	11,400	11,400	16,850
Total .....	28,150	28,150	18,232	18,232	23,682
Number of—					
Staff (a)—					
Scientific and professional .....	8	11	13	13	23
Administrative and clerical .....	6	7	8	8	9
Other .....	23	25	29	31	35
Total .....	37	43	50	52	67
Man-days spent on field work .....	350	431	741	901	501
Guide lectures to school parties .....	320	449	351	530	519
Children attending lectures .....	14,000	16,752	13,272	19,738	18,451
Children's Centre school vacation attendances .....	39,727	35,779	32,846	36,883	40,881
Total visitors' attendances (b) .....	123,686	136,372	143,377	124,416	141,998

(a) At 30 June.

(b) Including attendances of school children.

## THE WESTERN AUSTRALIAN ART GALLERY

The Western Australian Art Gallery is under the control of a Board of five members appointed by the Governor under the provisions of the *Art Gallery Act, 1959-1968*.

## THE WESTERN AUSTRALIAN ART GALLERY

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Expenditure—					
Salaries and wages .....	\$ 39,874	44,129	50,195	50,715	69,757
Acquisition of exhibits .....	\$ 25,551	36,857	29,945	41,041	112,009
Special exhibitions .....	\$ 3,719	2,662	12,090	5,745	10,771
Printing .....	\$ 6,071	9,697	11,784	6,384	8,324
Other .....	\$ 10,987	15,078	18,639	23,029	22,758
Total .....	\$ 86,202	108,423	122,653	126,914	223,619
Number of—					
Staff (a)—					
Professional—					
Full-time .....	3	3	4	3	3
Honorary .....	5	4	4	4	4
Other .....	10	11	11	15	20
Total .....	18	18	19	22	27
Exhibits for display (a)—					
Oil paintings .....	444	455	464	470	482
Water colour paintings .....	194	194	194	196	206
Drawings .....	407	419	422	426	438
Engravings, prints, woodcuts .....	1,095	1,124	1,148	1,176	1,300
Sculptures .....	43	46	51	56	57
Ceramics .....	401	405	405	427	427
Jewellery, medallions, coins .....	800	800	804	827	831
Other .....	60	60	210	234	265
Total .....	3,444	3,503	3,698	3,812	4,006
Special exhibitions .....	20	12	12	7	10
Visitors' attendances .....	(b)	113,631	109,242	126,786	121,718

(a) At 30 June.

(b) Not available.

The Gallery occupies part of a building shared with the Museum. The lower gallery is used mainly for lectures, art films and the display of interstate and overseas exhibitions. Works from the permanent collection are exhibited in the upper gallery, while the print

room is used to house and exhibit the collection of prints and drawings. Both displays are changed regularly. Important pieces of sculpture are on permanent display in both galleries and in an exterior courtyard designed for this purpose. Aboriginal grave and tribal posts, carvings and paintings are on permanent display in the upper gallery.

At 30 June 1970 the area available for display was 9,000 square feet, and for storage 6,100 square feet.

The Gallery has extended its services throughout the metropolitan area and country districts. Branch gallery facilities exist at the Cultural Centre in Derby where an exhibition of paintings from the permanent collection is displayed and changed each year. Reproductions of paintings are circulated by means of its loan service to various public institutions, and touring exhibitions from the permanent collection are taken to country districts at regular intervals.

These activities are supplemented by publications of various kinds, which are distributed to schools and other institutions or direct to the public. Reproductions of some works in the collection are also available.

The Art Gallery operates a general information service which is widely used and tours of the Gallery are conducted for organised groups of adults, students and school-children.

## SCIENTIFIC INSTITUTIONS

### State Government Observatory

The Perth Observatory was established in 1896, on the site now occupied by an administrative office building of the Western Australian Government, facing the main entrance to King's Park.

The buildings of the present Perth Observatory, near Bickley in the Darling Range, were officially opened on 30 September 1966.

The principal astronomical instrument of the Observatory is a photographic refractor of thirteen inches aperture. A sixteen-inch reflector, constructed by the Physics Department of the University of Western Australia, is also in operation at the Observatory site.

Current work at the Observatory includes investigations of stellar motions, based on measurements of old (1900-1920) and recent photographs; the recovery of minor planets which have been unobserved for several years; positional observations of the brighter comets and investigations of comet orbits; and securing photographs, to a faint magnitude limit, of significant areas of the southern sky, for future use in determinations of stellar motions.

Since late in 1967, a team of astronomers from the Hamburg (West Germany) Observatory, who brought with them a fully-automated seven-inch meridian transit circle telescope, have been carrying out a programme of observations of the positions of fundamental stars in the southern hemisphere. Staff of the Perth Observatory are now assisting in this programme and will continue similar work when the Hamburg programme is completed.

The Observatory is co-operating in the International Planetary Patrol Program, sponsored by the National Aeronautics and Space Administration of the United States of America and conducted by the Lowell Observatory of Flagstaff, Arizona, U.S.A. A twenty-inch telescope is on loan from the Lowell Observatory for purposes of the programme.

The programme involves photography, by a number of observatories well-distributed in longitude, of the planets Mars, Jupiter, Saturn and Venus, to enable the study of temporal changes in their atmospheres and surface features. The observations at Perth Observatory commenced early in 1971.

Arrangements are also proceeding for the installation, by the United States Naval Observatory, Washington, of a twin eight-inch telescope, with which photographs covering the entire southern sky are to be obtained simultaneously on blue and yellow-sensitive photographic plates. This survey, which is the follow-up to that in which the Hamburg Observatory is participating, will result in the determination of precise positions and



(through comparison with older catalogues) motions of about 200,000 southern hemisphere stars. The telescope is at present under construction and, after testing in Washington, should be ready for installation at Bickley late in 1971.

The Observatory maintains the time service for the State. It is open to visitors daily, except Saturdays, at 3 p.m. Night visits are arranged for groups with a specialised interest in astronomy.

### State Government Chemical Laboratories

In 1922 the various chemical services of the State Government were amalgamated to form the Government Chemical Laboratories, primarily for the performance of chemical work required by Government departments. In addition, the Laboratories serve government instrumentalities and semi-government authorities and undertake some chemical work for the general public. The activities of the Laboratories are organised under six Divisions, the separate functions of which are described briefly in the following summary.

The *Agriculture Division* does analytical work, on soils, for basic research, the effect of fertilisers, cultivation methods and crop rotation; on plants, as fodders for livestock and also to assess the nutritional requirements of plants with particular reference to the use of fertilisers and the correction of trace element deficiencies; on fertilisers and manures generally; and on animal tissues for diagnostic purposes.

The *Engineering Chemistry Division* is concerned mainly with research into the utilisation of the State's natural resources, particularly fuel and mineral resources. Investigations are carried out on specific technological problems at the request of Government, industry, or individual sponsors, or are initiated from within the Division. Facilities are available for physical and chemical testing of coals and other fuels and for experimental work on most aspects of fuel utilisation, ore dressing, chemical engineering and metallurgical processing.

The *Food, Drugs, Toxicology and Industrial Hygiene Division* deals with the analysis of foods, including milk; drugs; police work, including human and animal toxicological examinations for poisons and analysis of blood and urine for alcohol concentration; industrial hygiene, including determinations relating to the amount of potentially harmful substances present in industrial and commercial materials or associated with working conditions; and industrial effluents and pollution surveys of river and ocean waters.

The *Industrial Chemistry Division* provides, for Government, industry and the public generally, a source of technical information and advice on matters relating to industry and its products. It also advises on the potential of new methods or improvements in existing processes, and undertakes related experimental investigations.

The *Mineralogy, Mineral Technology and Geochemistry Division* is basically concerned with minerals, their occurrence and identification, but it also carries out the testing of clays and of aggregates for cement and concrete work, as well as corrosion and other tests. Analyses are done for the Geological Survey Branch of the Department of Mines in connection with mineral surveys, notably those for copper and iron. This Division is also the reference laboratory for analyses of crushings of gold ores by the State Batteries. An important part of its work is the identification of mineral specimens forwarded by prospectors and others and the Division deals with many hundreds of such samples every year.

The *Water Division* analyses waters from all parts of the State for Government and the public and makes recommendations on their suitability for specific purposes. Most of the work is done on behalf of the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works, to ensure that water supplies under their control comply with the accepted standards of water for human consumption. The Division also investigates problems associated with water distribution and industrial use, including cooling and heating waters and liquid wastes where corrosion, scaling or pollution are involved.

Details of the operations of the Government Chemical Laboratories are published in the Annual Report of the Director.

### **The Institute of Agriculture, University of Western Australia**

The Institute of Agriculture was established in 1938 within the University to provide research facilities and staff essential for the effective training of professional agricultural scientists at both undergraduate and graduate levels. It includes the teaching and examining Faculty of Agriculture, and the research staff associated with it. Although the Institute is financed to some extent from University funds, substantial research grants from producer organisations and other bodies and individuals interested in the promotion of agriculture have made possible most of the research that has been undertaken since its establishment.

During the first ten years of its existence, and despite the dislocation of the war years, it initiated research on plant and animal problems of the pastoral areas, commenced a series of fundamental studies related to the nutrition of ruminants, investigated factors affecting the baking quality and nutritive value of wheat and flour, elucidated factors affecting the fertility of sheep, and carried out a series of economic surveys of the sheep, wheat, dairying, pig, and poultry industries. The work of these years is summarised in the report of the Director, published in 1949.

Since 1948 the research programmes have been greatly increased and their scope widened. Plant breeding, selection and genetical research aimed at increasing the productivity and extending the climatic limits of crops and pasture legumes, especially subterranean clovers, medics and lupins, was strongly developed and fundamental studies initiated on the nutritional physiology and microbiology of the wool sheep with particular reference to the factors influencing the utilisation of protein, of urea and of low-quality roughages. The agronomic research has been expanded to include cereal genetics studies, and the animal research to include nutritional studies with beef cattle. In recent years studies in mineral metabolism, especially sulphur, phosphorus, cobalt and zinc, have been initiated.

More detailed economic surveys of the wheat-sheep farming industry and of the butterfat producing and whole-milk producing industries have been carried out, together with studies of the comparative advantages of forestry and agriculture in parts of the south-west of Western Australia, and studies of egg-marketing problems. In 1961 the John Thomson Agricultural Economics Centre was set up within the Institute with funds supplied by banks, business houses and other organisations. The research economists of this Centre have completed an economic appraisal of irrigation from the Gascoyne River, an inter-industry comparison of the economy of Western Australia, and an investigation of farm population and land development potential in Western Australia. In 1967 a Farm Management Service Laboratory was set up as a service to farmers.

In 1963 a Department of Soil Science and Plant Nutrition was established within the Institute with a very strong research group engaged in studies of soil physics, soil chemistry, soil microbiology and plant nutrition. The soil microbiology workers are mainly concerned with a continuation of earlier research into nodulation problems in legumes and the nitrogen-fixing process. The plant nutrition group has devoted particular attention to the uptake by crop and pasture plants of mineral nutrients, especially potassium, phosphorus, copper, zinc and manganese. The soil chemistry workers are specially concerned with the chemistry of soil organic matter, and the soil physics group with the role of the clay minerals in soil, with soil water, and the movement and retention of soil phosphorus and sulphur.

In 1966 a Department of Agronomy was established within the Institute. The research activities of the staff of this Department include the work in plant breeding mentioned previously and have been expanded to cover investigations into plant-water relations and agricultural climatology. A Department of Agricultural Economics and a Department of Animal Science and Production were established within the Institute early in 1971.

This brief review of the very wide range of the research activities of the Institute of Agriculture, at both the fundamental and at the more applied level, illustrates the extent to which it contributes to the assistance and service of the rural industries, indirectly by its training of agricultural scientists and directly through its manifold research projects.

### Commonwealth Scientific and Industrial Research Organization

Several Divisions of the Commonwealth Scientific and Industrial Research Organization are actively engaged in research work in Western Australia.

**Division of Soils.** The Division of Soils has in the past been concerned with soil-distribution studies in areas representative of the main types of agricultural land usage in Western Australia. Regional studies to build up a picture of the soil pattern of the whole State have also been made, and have been published as part of the *Atlas of Australian Soils*. More recently, field studies have been aimed at a better understanding of the whole soil environment as a basis for the investigation of specific problems. One such project involves the way in which the natural balance has been upset by agricultural development involving the replacement of deep-rooted, perennial shrubs and trees by shallow-rooted, annual crops and pastures. This change has frequently resulted in increased salinity of both soils and waters, and is of particular consequence where it affects catchments of reservoirs storing water for urban, industrial or agricultural purposes.

The Division is also concerned with the nutrition of a wide variety of crops, including cereals, pastures and forest trees. Yield responses of wheat to fertiliser treatments, over a wide range of soils and climatic conditions throughout the agricultural areas, are being investigated. The fertiliser requirements of annual pastures in higher-rainfall areas, and of exotic pines on both the lateritic soils of the Darling Range and the infertile sands of the Swan Coastal Plain, are also being investigated. Chemical analyses of the large number of both soil and plant samples, which are an essential part of these studies, have been facilitated by the development of automated laboratory facilities at the Western Australian Laboratories.

**Division of Plant Industry.** The Division of the Plant Industry in Western Australia has continued its research in pasture production and in animal production from pastoral systems. In addition, studies are being developed in crop and animal production in ley farming systems because of the need for increased diversification of agricultural production particularly in the high-rainfall areas.

Increased pasture production is being sought by the introduction of new pasture species or strains, or by removing the limitations placed on the value of existing pastures by nutrient deficiencies, toxicities and imbalances.

In pastoral agronomy the conversion of plant material into animal products is being studied with the aim of increasing the efficiency of animal production. In ley agronomy, problems of crop production are being studied in addition, and relative to, the pastoral agronomy aim of increasing animal production. Research in both pastoral agronomy and ley agronomy is orientated towards the better understanding of all the factors involved in pasture, crop and animal production and of their relative importance in agricultural systems.

A special feature of the Division's programme in Western Australia is the research on the deep sands of the Swan Coastal Plain. At present much of this area of some 3 million acres has a low level of agricultural production, but there are large volumes of underground water available and a programme of irrigation research has been undertaken. Initial results with both crops and pastures indicate a very high potential productivity. Both dryland and irrigation research are being increased because of future possibilities of intensive agriculture in this area.

Systems analysis techniques are being used to gain a better understanding of the relationships between various processes in different agricultural systems. This includes simulation of systems as mathematical models which are tested against real-life systems.

**Division of Entomology.** Biological control of two serious pasture pests, the red-legged earth mite and the lucerne flea, is the aim of a long-term study of the ecology and population dynamics of these pests which was commenced in 1952. The work has led to an understanding of the process involved in regulating numbers and has revealed the likely

occurrence of agents for biological control. Two useful predatory mites were discovered in Europe and North Africa, and attempts to establish them in Western Australia (and also in South Africa) are now being made. Detailed taxonomic studies of the families Bdellidae and Anystidae, to which these mites belong, as well as the host family Sminthuridae, have been necessary, and this is in progress.

Jarrah is a most important source of timber in Western Australia. The foliage of this tree is attacked by the jarrah leaf miner, the larva of a small moth. The extent and intensity of this infestation seems to have increased in recent years, and in 1967 a detailed ecological study was commenced. Special attention is being paid to the possible effects on the environment of various silvicultural methods, including controlled burning and its influence on the natural control of the leaf miner by parasites and predators.

A programme of research into the pest insects of pome fruit orchards was started in 1968. The programme is designed to gather data for comparison with results obtained in eastern Australian orchards, and to provide a detailed understanding of the life system of San Jose scale.

In 1969-70 a large-scale field test of a granulosus virus of potato tuber moth was carried out in the lower south-west. The test was successful and the study has been expanded to give data relating to the epidemiology of the virus, the ecology of potato tuber moth, and the role and status of other pests of potatoes.

**Division of Mathematical Statistics.** Officers of the Division of Mathematical Statistics are concerned with the application of statistical methods to special problems of local interest in the fields of the applied and biological sciences. In addition, they act in an advisory capacity to other research workers in the State on matters relating to the design of experiments and the analysis and interpretation of data.

**Division of Computing Research.** A branch of the Division of Computing Research was opened in Perth in 1968. Its function is to provide a computing service for research workers in other Divisions. A small computer connected to the University of Western Australia's computer, a line printer, a card reader, a paper-tape reader and paper-tape punch have been installed at the Organization's Laboratories.

**Division of Applied Mineralogy.** The laboratory of the Division of Applied Mineralogy is concerned mainly with research having a bearing on the mineral industry. The main theme of the laboratory's work is concerned with the elucidation of the chemical and physical nature of the geological processes of mineral formation and alteration. This work is directed towards helping to meet the special challenge of mineral exploration in inland areas, where rock outcrop is scarce and so much of the geology is obscured by the ubiquitous soil cover. Studies are in progress on processes of ore genesis, on the haloes of alteration around ore bodies and on possible methods of recognising indicators of ore bodies that can survive the process of weathering.

The laboratory, in addition, is acting as a link between manufacturing industry in Western Australia and physical, chemical and metallurgical divisions of the Commonwealth Scientific and Industrial Research Organization.

**Division of Wildlife Research.** The Division of Wildlife Research, located at Helena Valley, is concerned with investigations on the higher vertebrates (more particularly mammals and birds) and these cover not only species of economic importance but the native fauna generally. The Division played a part, in association with the Department of Agriculture, in the control of rabbits by the introduction of the disease myxomatosis, and carried out a basic research project on the control of the Euro (a species of kangaroo) in the Pilbara district.

Among birds, studies of the ecology of the Emu, the Wedge-tailed Eagle in the pastoral zone, the White-tailed Black Cockatoo, the Noisy Scrub-bird, and the Galah are proceeding. Other current projects include experimental and field studies on the factors controlling breeding seasons of birds under Western Australian conditions. The Division organises the Australian Bird-Banding Scheme.

**Division of Fisheries and Oceanography.** The Division of Fisheries and Oceanography has supplied the project leader for the Western Fisheries Research Project set up co-operatively by the Commonwealth Scientific and Industrial Research Organization, the Department of Primary Industry, the State fisheries authorities of Western Australia and South Australia, the Zoology Department of the University of Western Australia, and The Western Australian Museum. At present, the research includes work on rock lobsters (crayfish) marron, prawns, tuna, whiting, trout and whales and also on marine sedimentation, Haliotids (abalone), and the development of a sonic buoy for automatic collection of hydrological data. Officers of the Division are stationed at Perth to participate in the research on rock lobsters. Using a naval frigate and a research vessel of the Western Australian Department of Fisheries and Fauna, the Division is continuing work on the physico-chemical and biological oceanography of the eastern Indian Ocean. The Division has helped to equip and staff a fisheries research laboratory built by the Government of Western Australia on the coast near Perth and opened in October 1968.

**Division of Applied Geomechanics.** The Division of Applied Geomechanics is the most recently established member of the Western Australian Laboratories.

One of the prime reasons for opening a section in Perth was to undertake a geotechnical survey of the occurrence and foundation characteristics of the soils of the Perth metropolitan area and to co-ordinate the presentation of relevant data.

Other projects are the instrumentation and analysis of pressure and settlement characteristics of the Reserve Bank building now under construction in Perth (carried out in conjunction with the Commonwealth Department of Works), and a study of the general problem of the settlement of sands under static and transient loads.

**Other Activities.** Besides the research work being conducted at Perth and associated field stations, various co-operative programmes are under way in University departments and in the Western Australian Department of Agriculture. The Commonwealth Scientific and Industrial Research Organization has several officers stationed at the Kimberley Research Station investigating the crop and pasture problems of the northern areas.

### **Department of Agriculture**

Reference to the scientific work of the Department of Agriculture appears in the section *The Department of Agriculture* in Chapter VIII, Part 1—*Primary Production*.

## **BOTANIC GARDEN**

The Botanic Garden was established in The King's Park in 1962 and is under the control of the King's Park Board (see following section *Public Parks and Reserves*). The Botanic Garden is the counterpart of The Western Australian Museum in the botanical field, maintaining living collections of plants for scientific and educational purposes. Its official objects are to foster public interest in the conservation and cultivation of the Western Australian flora; to contribute to public education in this field; to become a centre for botanical and horticultural research in the flora of Western Australia; to provide a major tourist attraction; and to foster generally interest in botany and horticulture over the whole field of the plant kingdom.

The cultivated areas of the Garden, which was officially opened in October 1965, cover a total of seventy-six acres, made up of the Western Australian collection (thirty-four acres), a Californian, South African and Mediterranean collection (seven acres), and an arboretum of Western Australian native trees (thirty-five acres). The Western Australian collection at present comprises 1,200 species. Virtually all trees native to the southern half of the State, with the exception of some rare mallees, are represented in the arboretum.

Parties from the Botanic Garden are regularly in the field for the collection of propagating material, and contribute to the botanical exploration of the State. Special attention is devoted to locating rare species or species threatened with extinction. Vegetation maps of the State are being built up. Seed of native plants collected is distributed

to botanical institutions throughout the world and to private growers and nurserymen. A seed list, which normally offers from 1,000 to 1,300 species, is published annually, and about 15,000 packets of seed are distributed each year.

Research on propagation of native plants is carried on in the nursery, and information acquired is passed on to growers through State branches of the Society for Growing Australian Plants, using the medium of the Society's Journal. Within Western Australia, members of the staff constantly lecture and demonstrate and the nursery is opened to conducted parties at regular intervals. Official guides to the Botanic Garden may be engaged by parties of visitors. There is a nature trail for children in the Park bushland used regularly by the Gould League, and as the Botanic Garden develops it is designed to become of value for nature study groups. A Wildflower Exhibition is held in the Park each spring. Facilities are provided for the employment and ancillary training of students enrolled in the three-year course for the Western Australian Certificate of Horticulture and Park Administration.

### PUBLIC PARKS AND RESERVES

It is within the power of the Governor to dispose of, in any manner which serves the public interest, lands which are vested in the Crown and, in terms of this authority, Crown land is frequently reserved by order of the Governor for a variety of public purposes. Some of this land is reserved for public recreation and amusement, national and other public parks, or flora and fauna sanctuaries and the reserves are controlled by statutory bodies, the more important of which are dealt with in this section.

The *National Parks Board of Western Australia* controlled twenty-seven National Parks and a number of other reserves at 30 June 1970, totalling in all about 3.5 million acres in area. National Parks vested in the Board at that date comprised Hamersley Range (1,458,430 acres) in the Shire of Tableland; Cape Arid (642,000 acres), and Cape Le Grand (54,876 acres) on the south coast east of Esperance; Kalbarri (358,000 acres) located a few miles east of the mouth of the Murchison River; Stirling Range (285,874 acres) north of Albany; Nambung (39,991 acres) near Cervantes; Cape Range (33,171 acres) near Exmouth; Walpole-Nornalup (33,007 acres) on the south coast west of Denmark; Yalgorup (9,890 acres) south of Mandurah; Torndirrup (8,936 acres) south-west of Albany; Geikie Gorge (7,750 acres) near Fitzroy Crossing in the North-West; Yanchep (6,895 acres) near the coast about thirty miles north of Perth; Porongurup (5,531 acres) near Mount Barker; Walyunga (4,000 acres) in the Darling Range foothills about twenty miles north of Perth; John Forrest (3,906 acres) near Glen Forrest in the Darling Range; Neerabup (2,785 acres) north of Wanneroo; Sir James Mitchell (2,717 acres) alongside the South-West Highway in the Shannon River area; Serpentine (1,571 acres); Kalamunda (919 acres); Greenmount (127 acres); and Lesmurdie Falls (81 acres) in the Darling Range near Perth. Other National Parks not yet officially named are in Chichester Range, West Pilbara (372,483 acres); near Watheroo (76,646 acres); alongside the Lake King-Norseman road (64,480 acres); near Regans Ford (26,030 acres); east of Porongurup Range (150 acres); and near Gooseberry Hill (81 acres). Other reserves vested in the Board at 30 June 1970 included Wolf Creek Meteorite Crater Reserve (3,607 acres) some sixty-five miles south of Halls Creek; Tammin Flora Reserve (1,441 acres); Yanchep Flora Reserves (439 acres); Boronia Reserve (406 acres) south of the Wellington Dam Catchment Area; Hamelin Bay Reserve (366 acres) on the west coast near Cape Leeuwin; Nowergup Lake Fauna Sanctuary (288 acres); Walpole Flora Reserve (228 acres); Albany Boronia Reserve (112 acres); Matilda Bay Reserve (57 acres) on the Swan River near Perth; Araluen-Canning Dam Reserve (50 acres); Penguin Island Reserve (31 acres); and East Perth Cemetery Reserve (12 acres), a disused burial ground containing the remains of early pioneers. Flora and fauna are protected and firearms prohibited in all National Parks and Reserves controlled by the Board. Picnic and recreational facilities have been provided where necessary in the parks and reserves, while camping and caravan facilities are available in a few of them.

The *Emu Point (Albany) Reserve Board* controls a reserve containing an area of approximately 1,120 acres at Emu Point near Albany, which has been developed for recreation, camping and residential purposes. Two camping and caravan parks and a modern motel provide accommodation. A small boat harbour has been dredged and pen facilities to accommodate sixty boats constructed. An additional dredged area, without constructed pens, is provided so that large professional fishing boats might use ground moorings.

The *King's Park Board* administers an area of almost 1,000 acres close to the centre of Perth. Part of this area was dedicated in 1872 'for the purpose of a public park and recreation ground' and was enlarged in 1890. Beautification commenced in 1896 under the presidency of Sir John Forrest, and the name was changed in 1901 from Perth Park to The King's Park in honour of the accession of King Edward VII. In addition to its original function as park and recreation ground, The King's Park has over the years gradually developed two other important functions, as a National Shrine and as a Botanical Reserve. In the former case it houses the State's most important monuments and commemorative features of a military and historical nature. A memorial to the South African war was built in 1901, and the State War Memorial to the fallen of both world wars was erected on a commanding position on Mount Eliza in 1929 and extended in 1952. 'Honour Avenues' of trees dedicated to individual fallen servicemen were planted in 1919 and later, and another avenue commemorates the State Centenary of 1929. There are smaller memorials erected by individual regiments or other military units, and a number of monuments to important historical personages.

The concept of the botanical reserve grew from the fact that four-fifths of the Park's area remained undeveloped under a natural bushland which contained many native wildflowers. Increasing urbanisation and the elimination of natural sites in and close to Perth made the retention of this bushland area a matter of scientific and aesthetic value. This function was strengthened from 1962 onwards by the establishment in the Park of a botanic garden and arboretum of seventy-six acres for the cultivation and display of Western Australian native plants. (See preceding section *Botanic Garden*.)

Recent developments have not neglected the Park's original aesthetic and recreational functions. Facilities exist for playing tennis, bowls and hockey. A fully-equipped modern restaurant was erected in 1956, close to which are tourist attractions including a floral clock, a wishing well and a giant Karri log. There are two public barbecue sites and many miles of pedestrian paths and tracks. The original fifty acres of lawns and shrubberies have been materially extended by the Botanic Garden area. Four new lawns have been added, one of which encircles a landscaped water garden with four pools, two cascades and a waterfall, one pool featuring an illuminated fountain dedicated to the pioneer women of the State. In addition to this, a new picnic lawn and children's nature playground have been established around an artificial lake at the western end of the park and linked to older-developed areas by a mile-long vista dominated by a steel viewing tower of unusual design.

The *Zoological Gardens Board* administers the Zoological Gardens at South Perth, an area of forty-four acres of animal enclosures, cages, lawns and gardens. The Zoological Gardens were established in October 1898 for the collection and display of mammals, birds, reptiles and fish from all parts of the world, but specialising in Australian, and particularly Western Australian, fauna. During the year ended 30 June 1970, 88 species of mammals, 206 species of birds and 39 species of reptiles were exhibited. In this period 386,880 people paid for admission and, in addition, 3,735 disadvantaged children and adults were admitted free.

The *Rottnest Island Board* administers as a tourist and holiday resort a reserve comprising almost the whole of Rottnest Island, which is situated about ten miles west of Fremantle. The settlement at Thompsons Bay contains cottages and bungalows to let, a hotel, lodge, camping area and all services. Recreational facilities include a golf course, tennis courts, bowling green and a riding school. The coastline is ringed by a road system with access to the various swimming and fishing areas. There is a land-backed wharf

and three jetties in Thompsons Bay and jetties at Geordie Bay and Green Island. Special features of the island include the marsupial known as the Quokka and the Rottnest Island Daisy. The island is served regularly by air and sea transport.

*Caves Reserves.* Extensive limestone caves have been discovered at several places in the south-west part of the State. Some of them, between Cape Naturaliste and Cape Leeuwin and at Yanchep, have been developed for public inspection and certain areas of the surrounding land have been reserved, notably at Yanchep, Yallingup, Margaret River and Augusta.

*Local Government Reserves.* Many local authorities hold land for recreational purposes, the areas having been either Crown land vested in the Council, acquired by way of purchase, or received under private bequest. Included in these local government reserves are areas required to be surrendered to the Crown by private owners, when subdividing land into residential lots in order to provide recreation areas for the holders of lots in the subdivision. The reserves are frequently developed as public parks or to provide facilities for sports or camping.

*The State National Fitness Council* controls reserves, used principally as camp sites by youth and sporting groups, at Point Peron on the coast south of Fremantle, at Sorrento (under development) to the north, and at Bickley in the Darling Range.



## *Chapter V—continued*

### **Part 3—Health Services, Hospitals, and Care of the Aged and Disabled**

#### **HEALTH SERVICES**

The Commonwealth and State Government health authorities, together with Boards of Health under local government administration, co-operate in maintaining health services and in the prevention and control of infectious diseases in Western Australia.

#### **Commonwealth Government Services**

The Department of Health is administered, subject to the Minister, by a Director-General of Health. In each State there is a Director of Health responsible to the Director-General. Among the principal functions of the Department are the management of the National Health Services provided under the National Health Act and the administration of the Quarantine Act.

**National Health Services.** National Health Services financed from the National Welfare Fund, to which reference is made on page 233, include hospital and nursing home benefits; medical benefits; pharmaceutical benefits; handicapped children's benefits; the free supply of milk for school children; and the payment of tuberculosis allowances and other forms of assistance in tuberculosis control. (For rates and conditions applying to payment of these benefits see letterpress *National Health Services* on pages 242-7.) Additional expenditure from the National Welfare Fund in relation to health services includes the cost of district health laboratory services, the free supply of certain prophylactic materials and biological products (*e.g.* poliomyelitis vaccine), the supply and maintenance of hearing aids for children, subsidies to various voluntary organisations conducting home-nursing services that are assisted by the State Governments or local government authorities, the supply of artificially produced radio-active isotopes to private medical practitioners and hospitals for medical treatment purposes, and expenses in connection with the blood fractionation plant of the Commonwealth Serum Laboratories.

**Quarantine.** The *Quarantine Act* 1908-1969 provides for the quarantine of humans, animals and plants. Human quarantine is concerned primarily with the procedures necessary to exclude quarantinable diseases, namely smallpox, plague, cholera, yellow fever, typhus fever, leprosy, and such other diseases as may be declared under the Quarantine Act. Animal quarantine regulates the importation of animals and animal products from overseas, and plant quarantine the importation of all plants and plant products, with the object of excluding plant diseases, insect pests and weeds. In respect of interstate movements of animals and plants, the Quarantine Act becomes operative only when it is considered that Commonwealth action is necessary for the protection of any State or States, and in general the control of interstate movements of animals and plants is the responsibility of State Governments.

#### **State Government Services**

The principal Statute relating to the provision and regulation of health services in Western Australia is the *Health Act, 1911-1970*, which is administered, subject to the control of the Minister, by a Commissioner of Public Health. The Act is comprehensive in scope and confers on the Commissioner the powers necessary for the prevention and control of infectious diseases; the enforcement of sanitation, building and pure foods

standards; the control of nuisances and offensive trades; the regulation of the sale of pesticides and the manufacture of therapeutic substances; and the registration of private hospitals and the licensing of maternity homes. Other Acts under Public Health administration are the Anatomy Act, the Clean Air Act, the Cremation Act, the Poisons Act and the Radioactive Substances Act.

The Health Education Council is established as a statutory body under the provisions of the *Health Education Council Act, 1958-1961*. The Council conducts publicity campaigns and public lectures on matters affecting public health, including home accidents, handling of poisons, poliomyelitis and diphtheria immunisation and the control of flies and mosquitoes.

The Cancer Council of Western Australia is constituted under the provisions of the *Cancer Council of Western Australia Act, 1958-1964* as a statutory body with the functions of co-ordinating, promoting and subsidising research into the cause, diagnosis, prevention and treatment of cancer.

The Department of Public Health has a central laboratory housed in the Sir Charles Gairdner Hospital at Hollywood. At 31 December 1969 there were twenty-six branch laboratories, twenty of which were located at country centres. The principal activity of the laboratories is the examination of medical and public health specimens, but there is increasing emphasis on research, particularly in the fields of virology, salmonellosis, tuberculosis, unclassified mycobacteria, cytology and coronary disease.

### Infectious Diseases

The *Health Act, 1911-1970* provides for the compulsory notification of infectious diseases and for the application of preventive measures. For the purposes of the Act, infectious diseases are those which are specified in the Act, as well as any other diseases which may, from time to time, be declared. The occupier of premises where such a disease occurs is required to notify the local authority forthwith. The medical practitioner who attends a person suffering from an infectious disease must, on the day on which he becomes aware of the nature of the disease, notify the occupier and also the local authority and the Commissioner of Public Health.

On the appearance of any epidemic, endemic or contagious disease, the local authority is required to notify the Commissioner immediately and to report periodically on the disease. The Act provides for the disinfection and cleansing of premises and for the disinfection and destruction of bedding, clothing or other articles which have been exposed to infection. The Commissioner may require any person suspected to be suffering from, or to be a carrier of, an infectious disease to submit to medical examination.

The following table shows, for Western Australia, the number of cases notified during the years 1965 to 1969 for those diseases notifiable in all, or nearly all, States and Territories of Australia. In May 1965 the National Health and Medical Research Council at its Fifty-ninth Session proposed a basic list of diseases to be notifiable in each State and Territory and this table is based upon that proposal. The table does not include all diseases which are notifiable in Western Australia.

NOTIFIABLE DISEASES (a)—NUMBER OF CASES NOTIFIED (b)

Disease	1965	1966	1967	1968	1969
Brucellosis ....	3	3	2	1	2
Diphtheria ....	2	2	1	1	....
Infectious hepatitis ....	83	28	190	147	146
Leprosy (c) ....	18	13	12	26	28
Leptospirosis ....	14	7	2	1	....
Paratyphoid fever ....	3	1	1	2	....
Poliomyelitis ....	....	....	....	2	....
Tetanus ....	1	2	....	2	1
Tuberculosis ....	177	173	171	178	160
Typhoid fever ....	2	2	1	2	3
Typhus (all forms) ....	....	....	2	....	....

(a) See letterpress immediately preceding table. (b) Figures exclude cases where the original diagnosis was subsequently disproved. No cases of cholera, plague, smallpox or yellow fever were notified during the period.

(c) Aborigines account for practically all of these cases.

Leprosy and trachoma are endemic among the Aborigines of the Kimberley Division in the far north of the State, and cases are, with few exceptions, confined to the Aboriginal population. The Department of Public Health and the Northern Territory Medical Service co-operate in the control of these diseases.

The Commissioner of Public Health may compel any person believed to be suffering from venereal disease to undergo examination by a medical practitioner. Any person who is aware or suspects that he is suffering from venereal disease is required to consult a medical practitioner and, if found to be infected, must continue treatment until a certificate of cure is issued. Free treatment is available at public hospitals. The number of cases reported to the Department during 1969 was 1,026, comprising 817 cases of gonorrhoea and 209 cases of syphilis.

A joint campaign of tuberculosis control is conducted by the Commonwealth and State Governments. Under the provisions of the *Tuberculosis Act* 1948, the Commonwealth reimburses the State for capital expenditure incurred after 1 July 1948, and for net maintenance expenditure in excess of that of the base year 1947-48. In addition, the Commonwealth Government pays allowances to tuberculosis sufferers and their dependants, as set out in Part 5 of this Chapter. Western Australia, like the other States, carries out the actual work of diagnosis and treatment. Under the *Health Act, 1911-1970* (State), all persons in Western Australia may be required to undergo X-ray examinations, which are conducted by mobile units of the Tuberculosis Control Branch and at its Perth and Fremantle Chest Clinics.

### Special Health Services for Children

In addition to measures provided for immunisation against poliomyelitis, diphtheria and other infectious diseases, Child Health Services and School Medical and Dental Services assist in maintaining the general health of children in Western Australia.

Infant Health Centres have been established throughout the State to advise mothers concerning the care of infants. Expectant mothers are also assisted in this way and country mothers who are unable to attend a Centre may receive advice by letter under a Correspondence Nursing Scheme. It is estimated that three out of every four infants in the State are taken to a Centre at least once in the first year of life. Infant Health Sisters also visit remote areas of the State and interview mothers who are normally dependent on advice given by correspondence.

### INFANT HEALTH SERVICES

Particulars	1965	1966	1967	1968	1969
Expenditure (a)—					
Salaries and wages .... \$'000	236	262	260	275	305
Other .... \$'000	51	56	59	60	63
Total .... \$'000	287	318	319	335	368
Number of—					
Staff (b)—					
Medical officers ....	2	2	2	2	2
Nurses ....	92	86	84	85	84
Total ....	94	88	86	87	86
Infant health centres (b)—					
Perth Statistical Division....	36	39	39	44	44
Other Statistical Divisions ....	32	28	28	28	32
Mobile clinics ....	4	4	4	4	3
Total ....	72	71	71	76	79
Attendances at centres—					
Individual infants ....	31,812	35,550	33,907	36,773	39,715
Total attendances ....	231,191	240,401	240,513	256,129	265,314
Infants examined at pre-school centres ....	5,031	5,392	5,414	6,235	6,491
Home visits by nurses ....	26,483	27,312	26,400	27,210	28,662

(a) Year ended 30 June.

(b) At 31 December.

The School Medical Services provide for the examination of each child twice during his school life. In addition, a teacher who at any time observes symptoms of illness in a child may refer the matter for attention by a medical practitioner. Parents are notified of physical defects found during medical examinations and, where a condition needs home supervision, are advised of the action required. Dental defects, ear, nose and throat affections and defective vision are most frequently reported.

The School Dental Services operate mainly in the country, where private dental treatment may not be readily available. Because of limited staff, dental examinations of school children can be repeated only at fairly long intervals, at best about once every two years. Accordingly, in the larger schools, attention is concentrated on the younger children, but at smaller schools all children are examined. Parents are notified of dental treatment required and may have the work done by private dentists or may consent to their children being treated without charge by the schools dentists.

### Royal Flying Doctor Service of Australia

The Royal Flying Doctor Service of Australia is a non-profit organisation financed by grants from the Commonwealth and State Governments and by private donations. The principal function of the Service is to provide medical aid, dental care and air ambulance transport for residents in remote areas. Isolated townships, mining centres and sheep and cattle stations are usually equipped with two-way radio sets and, by this means, are linked with bases where doctors are available for radio consultation in the event of sickness or accident. In serious cases a doctor flies to the patient, who may then be flown to hospital for treatment. The Service provides, through the Commonwealth Department of Health, standard medical chests with directions for the use of the drugs and medical supplies which they contain.

The radio network of the Royal Flying Doctor Service is regularly used in the work of Schools of the Air conducted by the Education Department, and also for the transmission and receipt of telegrams. In addition, it may be used, as the need arises, in connection with flood relief, in searching for lost parties and in co-ordinating movements of livestock.

The following table shows particulars concerning the operations of the Western Australian Section of the Service during the five years ended June 1970.

ROYAL FLYING DOCTOR SERVICE OF AUSTRALIA  
OPERATIONS OF WESTERN AUSTRALIAN SECTION

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Expenditure .... \$'000	112	140	154	178	245
Number of—					
Medical flights .....	623	625	749	841	1,041
Miles flown .....	257,043	243,863	315,083	423,065	516,690
Patients transported .....	570	646	776	946	1,412
Patients attended .....	n.a.	3,564	6,131	5,124	6,558
Radio and telephone consultations	705	1,093	1,589	2,201	2,520

n.a. denotes 'not available'.

## HOSPITALS OTHER THAN MENTAL HOSPITALS

### Commonwealth Government Hospitals

The Repatriation General Hospital at Hollywood and the Edward Millen Hospital at Victoria Park provide free medical treatment for ex-servicemen and ex-servicewomen in respect of disabilities which have been accepted as due to war service. With certain exceptions, ex-servicemen or ex-servicewomen who are totally and permanently incapacitated as a result of war service, or who receive war pensions at the intermediate rate, or at the maximum general rate (see letterpress *War Pensions* on page 239) and service pensioners are entitled also to free treatment for disabilities not caused by war service. Widows and children of deceased ex-servicemen whose deaths are accepted as due to war

service may also receive free treatment. If the deceased serviceman was unmarried, his widowed mother may receive free treatment if widowed prior to his death or within three years after his death.

### State Government and Government-assisted Hospitals

The *Hospitals Act, 1927-1969* is administered, subject to the direction of the Minister for Health, by the Medical Department. For administrative purposes, a hospital under the direct control of the Medical Department is classified as 'departmental' and is financed from State funds. A hospital classified as a 'Board' hospital has its own board of management and is subsidised by the State Government.

The principal government and government-assisted hospitals are the Royal Perth Hospital, Fremantle Hospital, Sir Charles Gairdner Hospital, King Edward Memorial Hospital for Women, Princess Margaret Hospital for Children, the Home of Peace for the Chronic Sick, the Perth Dental Hospital, and Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

Departmental and Board hospitals collect fees from patients able to pay for treatment, and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act 1953-1970* (see letterpress *Hospital and Nursing Home Benefits* on pages 242-3), but are financed mainly from State Government funds.

The following table gives details of the activities of departmental and Board hospitals during the five years ended 30 June 1969.

DEPARTMENTAL AND BOARD HOSPITALS (a)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Expenditure—					
Capital funds....	\$'000 6,068	5,950	5,628	5,568	6,707
Salaries and wages ....	\$'000 13,909	15,396	18,700	20,779	23,576
Other ....	\$'000 9,976	11,307	13,067	15,631	17,785
Total ....	\$'000 29,953	32,653	37,395	41,978	48,068
Number of—					
Hospitals (b)—					
Departmental ....	40	40	42	43	46
Board ....	52	57	55	52	52
Total ....	92	97	97	95	98
Beds (c)—					
Departmental ....	2,123	2,137	3,257	3,223	3,274
Board ....	3,056	3,354	3,442	3,449	3,583
Total ....	5,179	5,491	6,699	6,672	6,857
Staff (b)—					
Medical ....	203	228	210	205	264
Nursing ....	3,603	3,827	4,352	4,656	4,651
Other ....	3,946	4,191	4,655	4,896	5,097
Total ....	7,752	8,246	9,217	9,757	10,012
In-patients—					
At beginning of year ....	3,467	3,571	4,685	4,662	4,800
Admissions ....	114,174	118,876	122,787	131,525	140,985
Discharges ....	111,389	115,945	119,716	128,328	137,507
Deaths ....	2,681	2,625	3,094	3,059	3,213
At end of year ....	3,571	3,877	4,662	4,800	5,065
Average daily number resident ....	3,396	3,588	4,534	4,648	4,873
Out-patients—					
Individuals ....	208,921	218,200	253,502	279,555	339,644
Attendances ....	659,656	729,120	769,233	786,293	861,384

(a) Includes Perth Dental Hospital. From 1966-67 the statistics shown include particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients. (b) At 30 June. (c) At 31 July.

As previously indicated, the control of tuberculosis is chiefly a State Government activity, supported by Commonwealth subsidies and carried out under the direction of the Commissioner of Public Health. The principal institution for the treatment of tuber-

culosis is the Sir Charles Gairdner Hospital at Hollywood which was opened in 1958 as the Perth Chest Hospital.

There is a leprosarium at Derby in the Kimberley Division.

### Private Hospitals and Nursing Homes

In addition to the government hospitals there are a number of private general and maternity hospitals, which are registered and inspected by the Department of Public Health. The principal private hospitals are those established by religious bodies in the metropolitan area and the main country towns. These include the Hospitals of Saint John of God at Subiaco, Belmont, Bunbury, Geraldton, Kalgoorlie and Northam; Saint Anne's, Mount Lawley; the Mount Hospital, Perth; Bethesda Hospital, Claremont and the Hillcrest Maternity Hospital, North Fremantle.

Private hospitals collect fees from patients and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act 1953-1970*. At 30 June 1969 there were 103 private hospitals and nursing homes in Western Australia approved for payment of hospital benefits and nursing home benefits under the Act. These hospitals and homes had a total bed capacity of 3,453 at that date.

## MENTAL HEALTH SERVICES

The *Mental Health Act, 1962-1968*, which consolidates and amends the law relating to the treatment of mental disorders, came into operation on 1 July 1966. The Mental Health Services established under the Act are administered, subject to the control of the Minister for Health, by the Director of Mental Health Services. The Director must be a psychiatrist and is appointed by the Governor. Institutions authorised by the Act include hospitals for the treatment of mental illness, reception homes, out-patient and child guidance clinics, day hospitals, training centres, geriatric centres, hostels, and sheltered workshop units.

The Act provides for the admission of patients to hospitals approved for the purpose, either on referral by a medical practitioner or by order of a Justice of the Peace supported by the referral of a medical practitioner. A person so received into a hospital must be examined within seventy-two hours by the superintendent or another psychiatrist, and admission as a patient is dependent upon the result of the examination. Unless found to be in need of treatment, the person is required to leave the hospital. Special provisions exist for the detention for observation or treatment of persons admitted by order of a court or from a prison. The Act also provides for voluntary admissions. A person not less than eighteen years of age may be granted admission on his own request. Younger persons may be admitted on the application of a parent or guardian.

Except in the case of a person admitted by order of a court or from a prison, a patient may be released on leave or discharged by the hospital superintendent. A Board of Visitors or the Supreme Court of Western Australia may also, after due consideration, order the release of a patient. Where application for the discharge of a voluntary patient is made either by the patient himself or, in the case of a patient under the age of eighteen years, by the parent or guardian at whose request the patient was admitted, he must be discharged within seventy-two hours.

The principal institution of the Mental Health Services is the Claremont Hospital. Other institutions include the Nathaniel Harper Homes for Children, Heathcote Hospital, Lemnos Hospital, Whitby Falls Hostel, Greenplace Hostel, Nedlands Hostel, the Selby Community Clinic, the Havelock Out-patient Clinic, the Fremantle Out-patient Clinic, the Kalgoorlie Out-patient Clinic, the Mildred Creak Centre for Autistic Children, the Child Guidance Clinic, the Forensic Division, the Irrabeena Referral Centre, the Industrial Rehabilitation Unit and the sheltered workshop at North Fremantle. There is the Pyrtton Training Centre for the intellectually handicapped at Bassendean and Mental Deficiency Division Hostels at Belmont and Subiaco.

The following table shows particulars concerning the mental health service units operated by the Mental Health Services authority during the year ended 30 June 1969.

MENTAL HEALTH SERVICES—YEAR ENDED 30 JUNE 1969

Particulars	Approved hospitals	Relabi- tation units	Hostels	Training centres	Out- patient clinics
Expenditure—					
Salaries and wages .... \$'000	2,707	85	85	426	520
Other .... \$'000	1,146	5	74	130	126
Total .... \$'000	3,853	90	159	556	646
Number of (a)—					
Units ....	3	4	5	2	7
Beds ....	1,397	....	185	117	....
Staff—					
Medical ....	17	....	....	2	22
Nursing and attendants ....	449	....	19	126	27
Other ....	416	34	15	84	66
Total ....	882	34	34	212	115
Patients on register at beginning of year ....	2,090	305	169	87	n.a.
Admissions ....	2,451	122	113	189	(b) 36,659
Discharges (c) ....	2,530	122	126	160	n.a.
Patients on register at end of year ....	2,011	305	156	116	(d) 10,316

n.a. denotes 'not applicable'.

(a) At 30 June. (b) Number of out-patient attendances. (c) Includes deaths and, in the case of 'approved hospitals', includes patients discharged from hospitals for after care. (d) Patients treated during the year.

The Commonwealth Government provides financial assistance to the States for or in connection with the building or equipment of mental health institutions. Payments are made from the Consolidated Revenue Fund. Grants provided for under the *States Grants (Mental Health Institutions) Act 1964-1970* are equal to one-third of a State's capital expenditure on mental health institutions.

## CARE OF AGED AND DISABLED PERSONS

Part 5 of this Chapter gives particulars of pensions, allowances and some other benefits available to aged and disabled persons under the provisions of the Social Services Act, the Repatriation Act, the National Health Act and the Tuberculosis Act. Forms of assistance extended to such persons by other Commonwealth Acts are dealt with below.

### Aged Persons Homes Act

Under the provisions of the *Aged Persons Homes Act 1954-1969* the Commonwealth Government extends financial assistance to religious, charitable and other organisations in providing accommodation for the aged. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to organisations 'to encourage and assist the provision of suitable homes for aged persons, and in particular homes at which aged persons may reside in conditions approaching as nearly as possible normal domestic life . . .'. For the purposes of the Act, the term 'aged person' means a man aged sixty-five years or over or a woman aged sixty years or over and includes the spouse of the aged person. The Act authorises grants to eligible organisations to be applied towards the cost of erecting or purchasing approved homes to be used permanently for the accommodation of aged persons. To be eligible for assistance an organisation must be one which is carried on otherwise than for the purpose of profit or gain to its individual members, and may be a religious, charitable or benevolent organisation, an organisation of former members of the defence forces, an organisation approved by the Governor-General, or a local governing body. An organisation conducted or controlled by the Government of the Commonwealth or of a State is not eligible for assistance.

When the original Act commenced on 16 December 1954 the grant was made on the basis of \$1 for each \$1 raised by the organisation excluding borrowed money and money received from a governmental body. An amending Act, operative from 22 October 1957, increased the Commonwealth contribution to \$2 for each \$1 raised by the organisation. Grants are made from moneys appropriated by the Parliament from the Consolidated Revenue Fund.

From the inception of the scheme to 30 June 1970, 159 grants aggregating \$10.8 million had been made to organisations in Western Australia to provide accommodation for 3,595 persons.

A supplementary grant may be approved in a year subsequent to the year when the original grant was approved. In the following table each supplementary grant has been included in the year in which the additional amount was actually approved.

#### AGED PERSONS HOMES GRANTS—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70	From inception to 30 June 1970
Number of grants ....	14	13	14	24	18	159
Number of persons accommodated ....	420	258	237	496	508	3,595
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Amount of grants approved ....	1,372	888	833	1,855	2,019	10,801

**Personal Care Subsidy.** An amendment to the Act operative from 10 October 1969 provides for payment of a Personal Care Subsidy to approved homes. Homes eligible for the subsidy are those where residents are provided with all meals and where staff is employed to assist residents who need help with bathing, dressing, personal laundry and the cleaning of their rooms, and those who need help with medication.

The subsidy is \$5 per week in respect of each person aged eighty years or over residing in the approved accommodation. Payments are made from the National Welfare Fund, and expenditure in Western Australia in the period to 30 June 1970 amounted to \$89,020.

#### Delivered Meals Subsidy Act

The *Delivered Meals Subsidy Act* 1970 came into operation on 15 April 1970. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services. Its purpose is to enable help to be given to organisations to establish, maintain, expand and improve services for the delivery of meals to aged and invalid persons. To qualify for approval, an organisation must conduct a regular service delivering meals wholly or mainly to aged or invalid persons in their homes.

The subsidy is at the rate of \$1 for every ten meals provided by an approved organisation. Payments are made from the National Welfare Fund, and expenditure in Western Australia in the period to 30 June 1970 amounted to \$19,948.

#### Sheltered Employment (Assistance) Act

The *Sheltered Employment (Assistance) Act* 1967 (Commonwealth), which came into operation on 30 June 1967, repealed the *Disabled Persons Accommodation Act* 1963 but incorporated and expanded the provisions of the repealed Act relating to assistance by the Commonwealth towards the provision of sheltered employment and accommodation for certain disabled persons. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to eligible organisations, deemed by the Minister to provide employment for disabled persons, as assistance towards meeting the cost of the purchase, construction or alteration of approved premises or the purchase of land for the provision of sheltered employment; the purchase or construction of approved residential accommodation for persons engaged in sheltered employment; rent payable in respect of approved premises; and the purchase of approved equipment.



Details of grants made in the first three years of operation of the Act are given in the following table.

#### SHELTERED WORKSHOPS GRANTS—WESTERN AUSTRALIA

Grants approved for—	1967-68		1968-69		1969-70	
	Number	Amount	Number	Amount	Number	Amount
		\$		\$		\$
Workshop premises ....	1	25,948	3	225,520	1	74,279
Workshop equipment ....	8	18,173	9	25,853	19	27,244
Workshop rental ....	1	333	2	2,552	1	2,686
Residential units ....	....	....	1	152,567	2	82,001
Total ....	10	44,454	15	406,492	23	186,210

#### Sheltered Employment Allowances

During 1967, an amendment was made to the Social Services Act to permit invalid pensioners and certain other disabled persons to earn an income from sheltered employment, and at the same time to be eligible to receive a special allowance which, in the case of an invalid pensioner, replaces the pension. The maximum rate of the sheltered employment allowance is the same as the maximum rate of invalid pension (see *letterpress Age and Invalid Pensions* in Part 5 of this Chapter). In addition, the recipient of an allowance who pays rent may receive supplementary assistance up to a maximum of \$2 per week, subject to a means test. The purpose of the sheltered employment allowance is to provide an incentive for disabled persons, whether in receipt of an invalid pension or not, to engage in gainful employment.

Provision is made in the Act for the maximum amount which may be earned from sheltered employment without affecting the special allowance and for reduction of the allowance where earnings exceed the prescribed amount.

Payments of allowances are met from the National Welfare Fund and commenced on 6 July 1967. During the year ended 30 June 1970 expenditure in Western Australia amounted to \$74,000.

#### Handicapped Children (Assistance) Act

The *Handicapped Children (Assistance) Act* 1970, which came into operation on 17 June 1970, provides for subsidies to be paid by the Commonwealth to eligible organisations towards the capital cost of premises to be used for the training of handicapped children; the cost of equipment to be used for or in connection with such training; and the capital cost of residential accommodation for handicapped children receiving training. For the purposes of the Act a handicapped child is a person suffering from a physical or mental disability who is aged under twenty-one years, or has attained the age of twenty-one years but continues to receive approved training which was commenced before attaining that age. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants towards the capital cost of premises or equipment are limited to two-thirds of the capital cost, or twice the sum which the organisation contributes from its own funds, whichever is the less.

The general purpose of the scheme is to help organisations to provide special facilities to enable training and accommodation to be provided for handicapped children. In many cases it is expected that the training will result in the children eventually engaging fully in the social and economic life of the community. Some will be helped to prepare for entry to sheltered employment, and to that extent the scheme may be regarded as complementary to the assistance programme for sheltered workshops. Other children will be assisted to achieve a greater measure of personal independence than would otherwise have been possible.

### Other Commonwealth Assistance

Under a set of Acts passed in 1969 the Commonwealth Government extends financial assistance to the States for the development of a range of home care services, senior citizens' centres and nursing homes, mainly for the aged, and the construction of self-contained dwelling units for certain single aged pensioners. These Acts, all of which provide assistance commencing with the financial year 1969-70, are the *States Grants (Home Care) Act 1969*, the *States Grants (Paramedical Services) Act 1969*, the *States Grants (Nursing Homes) Act 1969* and the *States Grants (Dwellings for Aged Pensioners) Act 1969*.

Under the *States Grants (Home Care) Act* the Commonwealth shares with a State on a \$1 for \$1 basis the cost of approved housekeeping or other domestic services provided wholly or mainly for aged persons in their homes. The Commonwealth also shares with a State on a \$1 for \$1 basis up to a maximum of one-third of the capital cost of approved senior citizens' centres, as well as paying half the salary of a welfare officer engaged in the co-ordination of home care services and associated with a senior citizens' centre.

The *States Grants (Paramedical Services) Act* authorises the Commonwealth to share with a State on a \$1 for \$1 basis the cost of approved paramedical services, such as chiroprapy, occupational therapy, physiotherapy and speech therapy, provided wholly or mainly for aged persons in their homes.

The *States Grants (Nursing Homes) Act* provides for the Commonwealth to share with a State on a \$1 for \$1 basis the capital costs of approved nursing homes wholly or mainly for aged persons of limited means. The Act stipulates that the Commonwealth's contribution during the five-year period ending 30 June 1974 shall not exceed \$5 million, Western Australia's share being a maximum of \$381,000.

The *States Grants (Dwellings for Aged Pensioners) Act* authorises the Commonwealth to share with a State on a \$1 for \$1 basis the cost of providing self-contained dwellings for certain recipients of an age pension payable under the Social Services Act or a service pension under the Repatriation Act. Commonwealth expenditure during the five-year period to 30 June 1974 is limited to \$25 million, Western Australia's share being \$1.75 million.

*Chapter V—continued*

**Part 4—Housing and Building**

**HOUSING AND THE CENSUS**

*NOTE. Dwellings occupied solely by full-blood Aborigines are excluded from all tables in this Part which contain information derived from the Census of Population and Housing. Such dwellings were excluded from the Census tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines on page 126.*

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The definitions given below are relevant when considering data derived from the Census of Population and Housing.

**OCCUPIED DWELLING.** For the purpose of the Census of Population and Housing an occupied dwelling is any habitation occupied by a household group living together as a domestic unit, and may comprise the whole of a building or only part of it. The term has therefore a very wide reference and includes, in addition to houses and flats, a great variety of dwellings ranging from a single-roomed shack to a multi-roomed hotel or institution.

**UNOCCUPIED DWELLINGS** include vacant dwellings available for sale or renting; dwellings such as week-enders or holiday homes and seasonal workers' quarters which were not occupied on Census night; dwellings normally occupied but whose occupants were temporarily absent on the night of the Census; newly-completed dwellings whose owners or tenants had not entered into occupation on Census night; and dwellings described as 'to be demolished', 'condemned', 'exhibition home', etc. The total number of unoccupied dwellings does not, therefore, represent the number of vacant houses and flats available for sale or renting.

**PRIVATE DWELLINGS** comprise the following classes:

**PRIVATE HOUSE**, which includes semi-detached houses; terrace houses; and shared private houses for which only one Householder's Schedule was received.

**SHARE OF PRIVATE HOUSE.** A share of a private house is a portion of a shared private house which is occupied separately and for which portion a separate Householder's Schedule was furnished.

**SELF-CONTAINED FLAT.** A self-contained flat is part of a house or other building which can be completely closed off and which has its own cooking and bathing facilities. Home units are included in this class.

**SHARE OF SELF-CONTAINED FLAT** is that portion of a shared self-contained flat for which a separate Householder's Schedule was furnished.

**SHED, HUT, TENT, ETC.** includes sheds, huts, tents, garages, caravans and boats, which are used for dwelling purposes.

**OTHER PRIVATE DWELLINGS** include flats (not self-contained) and dwellings such as rooms, apartments, etc. which are parts of buildings but are not self-contained units.

**Dwellings at Censuses from 1901**

The following table shows the numbers of occupied and unoccupied dwellings recorded in Western Australia at each Census from 1901 to 1966.

Dwellings—Censuses, 1901 TO 1966

Census date		Occupied dwellings				Unoccupied dwellings
		Private		Non-private	Total	
		Number	Average number of inmates			
1901—31 March	....	(a) 46,436	(b) 3.35	2,070	48,506	2,263
1911— 3 April	....	(c) 66,553	(d) 3.68	2,317	68,870	3,158
1921— 4 April	....	70,185	4.11	3,363	73,548	3,274
1933—30 June	....	100,441	3.95	3,137	103,578	4,029
1947—30 June	....	122,078	3.73	(e) 2,689	124,767	2,606
1954—30 June	....	159,496	3.64	(e) 3,327	162,823	6,614
1961—30 June	....	191,616	3.59	(e) 2,701	194,317	13,705
1966—30 June	....	221,444	3.52	(e) 3,219	224,663	17,965

(a) Comprises 17,702 dwellings of calico, canvas, and hessian, with an average of 2.10 inmates, and 28,734 other dwellings with an average of 4.12 inmates.  
 (b) See note (a).  
 (c) Comprises 14,216 dwellings of calico, canvas, and hessian, with an average of 1.93 inmates, and 52,337 other dwellings with an average of 4.16 inmates.  
 (d) See note (c).  
 (e) For further details see next table.

**Class of Dwelling**

The following table shows the number of occupied dwellings in Western Australia according to class of dwelling at each Census from 1947 to 1966. Private houses constituted 90.7 per cent of all occupied private dwellings in 1966 compared with 91.6 per cent in 1961. The proportion of self-contained flats to total occupied private dwellings increased from 4.53 per cent in 1961 to 6.36 per cent in 1966.

Dwellings According to Class  
Censuses, 1947 TO 1966

Class of dwelling	Census, 30 June—			
	1947	1954	1961	1966
Occupied dwellings—				
Private dwellings—				
Private house	(a) 110,576	140,383	175,495	200,900
Share of private house	5,969	7,487	2,788	844
Self-contained flat	4,021	5,257	8,672	14,074
Share of self-contained flat				18
Shed, hut, tent, etc.	(b) 1,512	4,480	3,641	3,439
Other private dwellings		1,889	1,020	2,169
Total, Private dwellings	122,078	159,496	191,616	221,444
Non-private dwellings—				
Caretaker's quarters	124	156	(c)	(c)
Licensed hotel	454	445	451	456
Motel			6	43
Boarding house, etc.	1,581	1,594	1,083	904
Educational institution	106	127	(d)	70
Religious institution	11	20	(d)	100
Charitable institution	47	69		55
Hospital	143	138		188
Staff barracks			630	799
Other non-private dwellings	223	778	155	594
Total, Non-private dwellings	2,689	3,327	2,701	3,219
Total, Occupied dwellings	124,767	162,823	194,317	224,663
Unoccupied dwellings	2,606	6,614	13,705	17,965

(a) Includes 'shed, hut, tent, etc.' (b) Not recorded separately; included with 'private house'. (c) Classified to 'private dwellings'. (d) Certain institutions previously classified as 'Educational' were classified as 'Religious'.

The following table gives particulars of the number of dwellings in each class at the Censuses of 1961 and 1966, together with the total numbers of persons enumerated in each class. Of the total of 832,181 persons enumerated in private and non-private dwellings in Western Australia at the Census of 30 June 1966, 88·7 per cent were in private houses (including shared houses), 3·58 per cent in self-contained flats (including shared flats), and 6·31 per cent in non-private dwellings. The corresponding percentages in 1961 were 90·0, 2·59, and 5·98.

**CLASS OF DWELLING AND PERSONS ENUMERATED  
CENSUSES, 1961 AND 1966**

Particulars	Census, 30 June 1961		Census, 30 June 1966					
	Total	Per cent of total	Perth Statistical Division	Other Divisions	Total	Per cent of total	Increase or decrease(a) since 1961	
							Number	Per cent
NUMBER OF DWELLINGS								
Occupied dwellings—								
Private dwellings—								
Private house .....	175,495	90·31	139,049	61,851	200,900	89·42	25,405	14·48
Share of private house .....	2,788	1·43	707	137	844	0·38	—1,944	—69·73
Self-contained flat....	8,672	4·46	{ 12,072	2,002	14,074	6·26	5,420	62·50
Share of self-contained flat(b)								
Shed, hut, tent, etc. ....	3,641	1·87	290	3,149	3,439	1·53	—202	5·55
Other private dwellings ....	1,020	0·52	1,751	418	2,169	0·97	1,149	112·65
Total, Private dwellings	191,616	98·61	153,887	67,557	221,444	98·57	29,828	15·57
Non-private dwellings .....	2,701	1·39	1,098	2,121	3,219	1·43	518	19·18
Total, Occupied dwellings	194,317	100·00	154,985	69,678	224,663	100·00	30,346	15·62
Unoccupied dwellings .....	13,705	....	8,211	9,754	17,965	....	4,260	31·08

**PERSONS ENUMERATED (c)**

Persons enumerated in—								
Private dwellings—								
Private house ....	652,070	88·52	500,599	235,032	735,631	87·92	83,561	12·81
Share of private house ....	6,909	0·94	1,756	464	2,220	0·27	—4,689	—67·87
Self-contained flat	18,977	2·58	24,843	4,953	29,796	3·56	10,840	57·12
Share of self-contained flat(b)	21	0·00	21	0·00	21	0·00	—180	—2·09
Shed, hut, tent, etc. ....	8,598	1·17	680	7,738	8,418	1·01	1,719	92·77
Other private dwellings ....	1,853	0·25	2,797	775	3,572	0·43		
Total, Private dwellings	688,407	93·45	530,696	248,962	779,658	93·19	91,251	13·26
Non-private dwellings ....	43,755	5·94	27,987	24,536	52,523	6·28	8,768	20·04
Total, Occupied dwellings	732,162	99·39	558,683	273,498	832,181	99·47	100,019	13·66
Persons enumerated elsewhere—								
Campers-out ....	1,450	0·20	138	1,316	1,454	0·17	4	0·28
Migratory population (d) ....	3,017	0·41	....	3,038	3,038	0·36	21	0·70
Total population	736,629	100·00	558,821	277,852	836,673	100·00	100,044	13·58

(a) Minus sign (—) denotes decrease. (b) At the 1961 Census, 'Share of self-contained flat' was not tabulated as a separate class; where two or more household groups were occupying a self-contained flat they were counted as one household group occupying a self-contained flat. (c) Excludes full-blood Aborigines; see letterpress *Aborigines* on page 126. (d) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also persons enumerated on long-distance trains, motor coaches or aircraft.

### Number of Inmates

At the 1966 Census, 85·1 per cent of occupied private houses in Western Australia had less than six inmates, compared with 84·7 per cent in 1961. In 1966, 89·1 per cent of occupied self-contained flats had less than four inmates, compared with 87·2 per cent in 1961.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
NUMBER OF INMATES (a): CENSUSES, 1961 AND 1966**

Number of inmates (a) per house or flat	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-con- tained flats	Perth Statistical Division	Other Divisions	Total
1	13,958	12,023	5,565	17,588	2,629	3,870	554	4,424
2	38,547	32,700	13,088	45,788	3,630	5,374	687	6,061
3	32,174	25,498	10,956	36,454	1,302	1,701	354	2,055
4	36,762	29,175	11,526	40,701	633	1,743	207	950
5	27,155	20,897	9,492	30,389	309	237	118	355
6	15,182	11,078	5,989	17,067	105	93	45	138
7	6,744	4,592	2,874	7,466	44	34	25	59
8	3,022	1,854	1,403	3,257	15	13	8	21
9	1,062	703	514	1,217	4	5	4	9
10 and over	889	529	444	973	1	2	....	2
Total houses, flats	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Total inmates	652,070	500,599	235,032	735,631	18,977	24,843	4,953	29,796
Average number of inmates	3.72	3.60	3.80	3.66	2.19	2.06	2.47	2.12

(a) Excludes full-blood Aborigines; see letterpress *Aborigines* on page 126.

### Number of Rooms

Occupied private houses containing five rooms were the most numerous group in Western Australia at both the 1961 and 1966 Censuses, comprising respectively 40.2 per cent and 42.9 per cent of the total. In 1966, 85.5 per cent of occupied self-contained flats had less than five rooms, compared with 79.5 per cent in 1961.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
NUMBER OF ROOMS: CENSUSES, 1961 AND 1966**

Number of rooms (a) per house or flat	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-con- tained flats	Perth Statistical Division	Other Divisions	Total
1	108	61	124	185	93	239	43	282
2	1,523	854	714	1,568	1,147	2,527	342	2,869
3	5,815	3,388	2,531	5,919	2,764	4,170	665	4,835
4	37,176	23,495	11,270	34,765	2,891	3,567	487	4,054
5	70,491	62,508	23,581	86,089	1,143	1,113	277	1,390
6	40,173	31,706	13,382	45,088	403	303	101	404
7	13,122	11,528	6,194	17,722	107	94	47	141
8	4,314	3,681	2,388	6,069	50	36	25	61
9	1,486	1,084	902	1,986	29	9	5	14
10 and over	1,101	744	765	1,509	4	14	10	24
Not stated	186	(b)	(b)	(b)	41	(b)	(b)	(b)
Total houses, flats	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Average number of rooms	5.22	5.30	5.36	5.32	3.69	3.37	3.67	3.41

(a) Includes kitchen and permanently enclosed sleep-out, but does not include bathroom, toilet, pantry, laundry or store-room. (b) In the small number of cases where the number of rooms was not stated, a number was selected during processing of the 1966 Census schedules.

### Material of Outer Walls

Brick and brick veneer predominated as materials of outer walls of occupied private dwellings in Western Australia at both the 1961 and 1966 Censuses, representing 42·7 per cent of private houses and 75·9 per cent of self-contained flats in 1961, and 49·9 per cent and 80·3 per cent in 1966. Fibro-cement was next in importance, being used in 31·7 per cent of private houses in 1961 and 30·5 per cent in 1966. The proportion of private houses with outer walls of wood declined from 16·9 per cent in 1961 to 13·1 per cent in 1966.

#### OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS MATERIAL OF OUTER WALLS: CENSUSES, 1961 AND 1966

Material of outer walls	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Brick .....	74,939	81,812	7,554	89,366	6,579	10,382	688	11,070
Brick veneer (a) .....		9,451	1,487	10,938		191	40	231
Stone .....	3,303	1,562	1,518	3,080	238	194	49	243
Concrete .....	4,815	2,174	2,487	4,661	156	366	46	412
Wood .....	29,744	12,440	13,802	26,242	474	287	281	568
Iron, tin .....	5,330	386	3,702	4,088	153	15	166	181
Fibro-cement .....	55,637	31,083	30,204	61,287	1,043	629	729	1,358
Other .....	1,615	141	1,097	1,238	19	8	3	11
Not stated .....	112	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Total .....	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(a) So described in individual Census schedules. (b) In the small number of cases where material of outer walls was not stated a material was selected during processing of the 1966 Census schedules.

### Nature of Occupancy

At the 1961 Census, 73·8 per cent of private houses in Western Australia were occupied by owners including purchasers by instalments, compared with 74·9 per cent in 1966. In the same period the proportion of private houses occupied by tenants, including tenants of government-owned houses, declined from 23·8 per cent to 22·8 per cent. Of the total number of occupied self-contained flats at the 1961 Census, 84·4 per cent were occupied by tenants and 12·7 per cent by owners. At the 1966 Census the proportions were 83·9 per cent and 13·4 per cent.

#### OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS NATURE OF OCCUPANCY: CENSUSES, 1961 AND 1966

Nature of occupancy	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Owner (a) .....	129,583	109,647	40,864	150,511	1,100	1,573	306	1,879
Tenant .....	41,710	27,734	17,986	45,720	7,315	10,261	1,548	11,809
Caretaker .....	1,784	946	1,256	2,202	163	163	61	224
Other .....	1,867	416	1,221	1,637	72	35	50	85
Not stated .....	551	306	524	830	22	40	37	77
Total .....	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(a) Including purchaser by instalments.

## Weekly Rents

The following table shows the numbers of unfurnished private houses and self-contained flats in each of the Statistical Divisions of Western Australia at the Census of 30 June 1966, classified according to weekly rent (unfurnished).

OCCUPIED PRIVATE TENANTED HOUSES AND SELF-CONTAINED FLATS (a)  
WEEKLY RENT (UNFURNISHED): CENSUS, 30 JUNE 1966

Weekly rent (unfurnished)	Statistical Division										Western Australia
	Perth	South- West	Southern Agricul- tural	Central Agricul- tural	Northern Agricul- tural	Eastern Gold- fields	Central	North- West	Pilbara	Kim- berley	
NUMBER OF PRIVATE HOUSES											
Under \$2.00 .....	819	509	188	304	204	191	49	12	23	39	2,338
\$2.00- \$3.99 .....	1,320	885	217	399	208	442	59	16	19	31	3,596
\$4.00- \$5.99 .....	2,731	847	365	668	325	504	50	40	17	17	5,564
\$6.00- \$7.99 .....	6,025	1,160	611	926	453	236	34	57	127	26	9,655
\$8.00- \$9.99 .....	5,539	697	417	646	493	114	4	94	48	31	8,083
\$10.00-\$11.99 .....	2,955	212	171	186	163	69	4	57	31	30	3,878
\$12.00-\$13.99 .....	1,990	89	59	59	74	24	1	11	22	90	2,419
\$14.00-\$15.99 .....	904	24	20	27	20	8	....	2	11	9	1,025
\$16.00-\$17.99 .....	420	13	11	11	12	6	....	18	1	3	495
\$18.00-\$19.99 .....	126	3	2	2	3	....	....	3	1	2	142
\$20.00 and over .....	332	18	4	8	9	4	....	4	2	5	386
Not stated ....	1,302	349	281	619	375	223	34	75	45	71	3,374
Total private ten- anted houses ....	24,463	4,806	2,346	3,855	2,339	1,821	235	389	347	354	40,955
Average rent ....	\$ 8.37	\$ 5.69	\$ 6.49	\$ 6.13	\$ 6.61	\$ 4.72	\$ 3.68	\$ 8.57	\$ 7.46	\$ 8.54	\$ 7.48
NUMBER OF SELF-CONTAINED FLATS											
Under \$2.00 .....	193	21	15	15	3	12	2	3	1	....	265
\$2.00- \$3.99 .....	264	22	18	33	16	51	1	....	....	1	406
\$4.00- \$5.99 .....	235	30	17	31	18	43	....	....	1	2	377
\$6.00- \$7.99 .....	487	45	26	65	17	12	....	5	1	5	663
\$8.00- \$9.99 .....	565	19	26	17	12	4	....	2	2	8	655
\$10.00-\$11.99 .....	1,047	43	24	11	17	4	....	....	....	5	1,151
\$12.00-\$13.99 .....	1,783	23	14	6	13	7	....	1	1	1	1,849
\$14.00-\$15.99 .....	1,009	7	10	4	2	3	....	....	1	....	1,036
\$16.00-\$17.99 .....	359	1	2	....	8	1	....	....	....	....	371
\$18.00-\$19.99 .....	119	4	....	....	1	3	....	....	....	....	127
\$20.00 and over .....	185	2	2	4	....	3	....	1	....	....	197
Not stated ....	527	24	11	20	17	11	2	6	2	4	624
Total private ten- anted flats ....	6,773	241	165	206	124	154	5	18	9	26	7,721
Average rent ....	\$ 11.45	\$ 7.69	\$ 7.84	\$ 6.40	\$ 8.11	\$ 5.57	\$ 0.67	\$ 7.13	\$ 7.81	\$ 8.47	\$ 10.93

(a) Includes dwellings occupied by tenants of The State Housing Commission of Western Australia.

At the 1966 Census, of the tenanted private houses for which rent (unfurnished) was stated, 77.79 per cent had rentals below \$10 per week, while the corresponding proportion for tenanted flats was 33.34 per cent. The average weekly rent of private houses (\$7.48) was considerably lower than the figure for flats (\$10.93).

More than one-half (59.73 per cent) of the tenanted private houses and 87.72 per cent of the tenanted flats in Western Australia were situated in the Perth Statistical Division.

Compared with other Statistical Divisions and Western Australia as a whole, average weekly rentals were highest for private houses in the North West Statistical Division, while the Perth Statistical Division had the highest average rentals for tenanted flats. The Central Statistical Division showed the lowest average rentals for both dwelling types.



**Facilities**

At the 1961 Census the question on facilities (gas, electricity, television set) was answered in relation to 190,457 private dwellings in Western Australia. Of this total, 61·3 per cent had electricity only, 33·5 per cent had both electricity and gas, and 4·99 per cent had neither electricity nor gas. At the 1966 Census, when replies were furnished in relation to 220,620 private dwellings, the proportions were 60·8 per cent with electricity only, 37·1 per cent with both electricity and gas, and 1·64 per cent with neither electricity nor gas. At the 1961 Census, 37·5 per cent of occupied private dwellings were stated to have a television set, compared with 68·6 per cent in 1966.

In the following table similar information is shown for private houses and self-contained flats at the Censuses of 1961 and 1966.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
FACILITIES: CENSUSES, 1961 AND 1966**

Facilities	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses (a)	Perth Statistical Division	Other Divisions	Total	Total, self-con- tained flats	Perth Statistical Division	Other Divisions	Total
Gas only .....	419	118	613	731	7	8	14	22
Electricity only .....	112,086	85,220	41,422	126,642	2,948	3,887	1,371	5,258
Gas and electricity .....	56,101	53,192	17,224	70,416	5,667	8,148	585	8,733
Neither gas nor electricity .....	9,401	404	2,246	2,650	33	5	15	20
Not stated .....	1,129	115	346	461	17	24	17	41
<b>Total .....</b>	<b>(a)179,136</b>	<b>139,049</b>	<b>61,851</b>	<b>200,900</b>	<b>8,672</b>	<b>12,072</b>	<b>2,002</b>	<b>14,074</b>
Television set .....	68,424	118,066	24,482	142,548	2,514	7,653	473	8,126

(a) Includes sheds, huts, etc. See second table on page 214.

**Motor Vehicles**

The question concerning motor vehicles used by members of households (see footnote to following table) was included in the census schedule in 1966 for the first time. Of the total of 198,100 occupied private houses in Western Australia for which replies were received, 17·8 per cent had no vehicle, 53·7 per cent had one vehicle, 20·9 per cent had two vehicles, 5·37 per cent had three vehicles, and 2·19 per cent had four or more vehicles. The corresponding proportions for self-contained flats were 35·6 per cent, 53·5 per cent, 9·24 per cent, 1·31 per cent, and 0·32 per cent.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
NUMBER OF MOTOR VEHICLES (a): CENSUS, 30 JUNE 1966**

Number of motor vehicles (a)	Private house			Self-contained flat		
	Perth Statistical Division	Other Divisions	Total	Perth Statistical Division	Other Divisions	Total
No vehicle .....	27,465	7,872	35,337	4,372	499	4,871
1 vehicle .....	75,935	30,483	106,418	6,241	1,085	7,326
2 vehicles .....	27,719	13,657	41,376	1,008	257	1,265
3 vehicles .....	5,092	5,544	10,636	131	48	179
4 or more vehicles .....	1,100	3,233	4,333	26	18	44
Not stated .....	1,738	1,062	2,800	294	95	389
<b>Total houses, flats .....</b>	<b>139,049</b>	<b>61,851</b>	<b>200,900</b>	<b>12,072</b>	<b>2,002</b>	<b>14,074</b>
<b>Total vehicles (a) .....</b>	<b>151,394</b>	<b>89,203</b>	<b>240,597</b>	<b>8,783</b>	<b>1,827</b>	<b>10,610</b>

(a) Householders were asked to state 'the number of Motor Vehicles (excluding Motor Cycles and Scooters) used by members of this household that were garaged or parked at or near this dwelling for the night of Thursday, 30th June'.

### Unoccupied Dwellings

For dwellings not occupied on the night of the Census, collectors were required to determine as many particulars as possible and, where the information was available, to enter on the Census schedule the reason why the dwelling was unoccupied. That this information could not be ascertained in a high proportion of cases is evident from the numbers shown in the following table in the category 'Other and not stated', equivalent to 17.1 per cent of all unoccupied private dwellings in 1961 and 34.1 per cent in 1966.

UNOCCUPIED PRIVATE DWELLINGS—CENSUSES, 1961 AND 1966

Reason for being unoccupied	Census, 30 June—			
	1961	1966		
	Total, unoccupied private dwellings	Perth Statistical Division	Other Divisions	Total
For sale or for renting .....	2,487	1,593	1,192	2,785
Holiday home, week-ender, seasonal workers' quarters .....	4,771	2,266	2,852	5,118
Occupants temporarily absent .....	3,463	1,828	1,390	3,218
To be demolished, condemned .....	296	187	197	384
Other and not stated .....	2,273	2,309	3,653	5,962
Total .....	13,290	8,183	9,284	17,467

### Geographical Distribution of Dwellings

**Statistical Divisions.** The following tables show the numbers and proportions of occupied dwellings in each of the Statistical Divisions of Western Australia at each Census from 1911 to 1966, and a dissection according to class of dwelling at the Censuses of 1961 and 1966.

Between the Censuses of 1961 and 1966, the number of occupied private houses in the Perth Statistical Division increased by 18.4 per cent compared with an increase of 6.46 per cent in the rest of the State. The number of occupied self-contained flats rose by 65.7 per cent in the Perth Statistical Division and 44.5 per cent in the rest of the State. The total number of occupied private dwellings in the Perth Statistical Division rose by 19.9 per cent. Other Divisions showing an increase were North-West, 75.6 per cent; Kimberley, 63.1 per cent; Pilbara, 59.7 per cent; Northern Agricultural, 11.1 per cent; Southern Agricultural, 8.19 per cent; South-West, 5.07 per cent; and Central Agricultural, 2.58 per cent. Divisions in which a decrease was recorded were Central, 11.4 per cent, and Eastern Goldfields, 2.28 per cent.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966  
(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division .....	24,358	35,190	53,394	74,478	102,745	129,488	154,985
Other Divisions—							
South-West .....	7,381	8,319	12,544	13,611	17,336	18,714	19,703
Southern Agricultural .....	3,903	4,654	6,410	6,522	9,159	10,775	11,688
Central Agricultural .....	8,115	9,026	12,352	10,872	13,378	14,097	14,540
Northern Agricultural .....	2,953	3,846	5,963	5,691	7,403	8,338	9,345
Eastern Goldfields .....	17,058	9,808	9,271	10,614	9,607	9,389	9,257
Central .....	3,261	1,344	2,247	1,628	1,205	1,015	926
North-West .....	416	389	526	506	749	922	1,624
Pilbara .....	856	414	323	322	564	643	1,047
Kimberley .....	569	558	548	523	677	936	1,548
Total .....	44,512	38,358	50,184	50,289	60,078	64,829	69,678
WESTERN AUSTRALIA .....	68,870	73,548	103,578	124,767	162,823	194,317	224,663

(a) For component local government areas, see map at back of Year Book.

# OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966 PERCENTAGE DISTRIBUTION

(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division	35.37	47.85	51.55	59.69	63.10	66.64	68.99
Other Divisions—							
South-West	10.72	11.31	12.11	10.91	10.65	9.63	8.77
Southern Agricultural	5.67	6.33	6.19	5.23	5.63	5.55	5.20
Central Agricultural	11.78	12.27	11.93	8.71	8.22	7.25	6.47
Northern Agricultural	4.29	5.23	5.76	4.56	4.55	4.29	4.16
Eastern Goldfields	24.77	13.34	8.95	8.51	5.90	4.83	4.12
Central	4.74	1.83	2.17	1.30	0.74	0.52	0.41
North-West	0.60	0.53	0.51	0.41	0.46	0.47	0.72
Pilbara	1.24	0.56	0.31	0.26	0.35	0.33	0.47
Kimberley	0.83	0.76	0.53	0.42	0.42	0.48	0.69
Total	64.63	52.15	48.45	40.31	36.90	33.36	31.01
WESTERN AUSTRALIA	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) For component local government areas, see map at back of Year Book.

# OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CLASS OF DWELLING CENSUSES, 1961 AND 1966

Statistical Division (a)	Private dwellings						Total, private dwellings	Non- private dwellings	Total, occupied dwellings
	Private house	Share of private house	Self-con- tained flat	Share of self-con- tained flat	Shed, hut, tent, etc.	Other			

CENSUS, 30 JUNE 1961										
Perth Statistical Division ....	117,397	2,258	7,287	(b)	544	815	128,301	1,187	129,488	
Other Divisions—										
South-West .....	17,292	167	419		544	44	18,466	248	18,714	
Southern Agricultural .....	9,716	72	205		568	20	10,581	194	10,775	
Central Agricultural .....	12,902	146	183		577	22	13,830	267	14,097	
Northern Agricultural .....	7,415	77	149		449	28	8,118	220	8,338	
Eastern Goldfields.....	8,112	50	372		555	74	9,163	226	9,389	
Central .....	778	....	7		147	....	932	83	1,015	
North-West .....	720	4	22		81	8	835	87	922	
Pilbara .....	487	6	12		62	1	568	75	643	
Kimberley .....	676	8	16		114	8	822	114	936	
Total .....	58,098	530	1,385	3,097	205	63,315	1,514	64,829		
WESTERN AUSTRALIA	175,495	2,788	8,672	3,641	1,020	191,616	(c) 2,701	194,317		

CENSUS, 30 JUNE 1961

CENSUS, 30 JUNE 1966

Perth Statistical Division	139,049	707	12,072	18	290	1,751	153,887	1,098	154,985
Other Divisions—									
South-West	18,398	34	561		308	102	19,403	300	19,703
Southern Agricultural	10,672	13	291		417	55	11,448	240	11,688
Central Agricultural	13,378	23	325		409	52	14,187	353	14,540
Northern Agricultural	8,251	16	271		417	68	9,023	322	9,345
Eastern Goldfields	7,848	32	405		556	114	8,955	302	9,257
Central	686	3	11		123	3	826	100	926
North-West	966	6	50		431	13	1,466	158	1,624
Pilbara	645	2	30		226	5	908	139	1,047
Kimberley	1,007	8	58		262	6	1,341	207	1,548
Total	61,851	137	2,002		3,149	418	67,557	2,121	69,678
WESTERN AUSTRALIA	200,900	844	14,074	18	3,439	2,169	221,444	(c) 3,219	224,663

(a) For component local government areas, see map at back of Year Book. (b) Not tabulated separately; where two or more household groups were occupying a self-contained flat they were counted as one household group occupying a self-contained flat. (c) For dissection according to class of dwelling see second table on page 214.

**Australian States.** The following table gives a dissection according to class of dwellings recorded in each of the Australian States and in Australia as a whole at the Census of 30 June 1966.

**DWELLINGS ACCORDING TO CLASS—AUSTRALIAN STATES  
CENSUS, 30 JUNE 1966**

Class of dwelling	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Occupied dwellings—							
Private dwellings—							
Private house ....	961,077	752,776	381,681	271,045	200,900	88,780	2,681,725
Share of private house ....	11,496	9,166	1,586	2,140	844	469	25,914
Self-contained flat ....	164,380	92,166	43,069	20,802	14,074	7,036	345,585
Share of self-contained flat ....	666	277	104	61	18	22	1,168
Shed, hut, tent, etc. ....	12,309	3,725	7,952	1,938	3,439	882	31,056
Other private dwellings ....	28,194	23,338	7,759	3,644	2,169	1,093	66,478
Total, Private dwellings ....	1,178,122	881,448	442,151	299,630	221,444	98,282	3,151,926
Non-private dwellings ....	11,417	7,536	7,018	2,684	3,219	1,084	33,730
Total, Occupied dwellings ....	1,189,539	888,984	449,169	302,314	224,663	99,366	3,185,656
Unoccupied dwellings ....	101,546	64,757	41,818	25,110	17,965	10,800	263,873

(a) Includes Northern Territory (7,499 occupied private dwellings and 568 occupied non-private dwellings) and Australian Capital Territory (23,350 occupied private dwellings and 204 occupied non-private dwellings).

In the following table occupied dwellings recorded in each State and Territory at the 1966 Census are classified as *Metropolitan Urban*, *Other Urban* or *Rural* in accordance with the criteria outlined on page 133.

**OCCUPIED DWELLINGS (a)—METROPOLITAN, OTHER URBAN, AND RURAL (b)  
STATES AND TERRITORIES: CENSUS, 30 JUNE 1966**

State or Territory	Urban			Rural	Total
	Metropolitan	Other	Total		
NUMBER OF DWELLINGS					
New South Wales	706,595	334,201	1,040,796	148,743	1,189,539
Victoria	593,408	174,555	767,963	121,021	888,984
Queensland	200,239	150,935	351,174	97,995	449,169
South Australia	205,457	46,926	252,383	49,931	302,314
Western Australia	139,509	36,906	176,415	48,248	224,663
Tasmania	32,371	38,155	70,526	28,840	99,366
Northern Territory	.....	6,503	6,503	1,564	8,067
Australian Capital Territory	22,763	....	22,763	791	23,554
AUSTRALIA	1,900,342	788,181	2,688,523	497,133	3,185,656
PERCENTAGE DISTRIBUTION					
New South Wales	59·40	28·10	87·50	12·50	100·00
Victoria	66·75	19·64	86·39	13·61	100·00
Queensland	44·58	33·60	78·18	21·81	100·00
South Australia	67·96	15·52	83·48	16·52	100·00
Western Australia	62·10	16·43	78·52	21·48	100·00
Tasmania	32·58	38·40	70·98	29·02	100·00
Northern Territory	.....	80·61	80·61	19·39	100·00
Australian Capital Territory	96·64	....	96·64	3·36	100·00
AUSTRALIA	59·65	24·74	84·39	15·61	100·00

(a) Private and non-private.

(b) See page 133 for definitions of *Metropolitan*, *Other Urban*, and *Rural*.

**GOVERNMENT AND GOVERNMENT-SPONSORED HOUSING**

**The State Housing Commission**

The State Housing Commission was established in January 1947 under the State Housing Act of 1946 to replace the Workers' Homes Board which had been created in 1912 to 'erect and dispose of workers' dwellings, and to make advances to people of

limited means to provide homes for themselves'. The Act confers on the Commission the legal authority formerly vested in the Board and has as its objects 'the improvement of existing housing conditions' and 'the provision of adequate and suitable housing accommodation for persons of limited means and certain other persons not otherwise adequately housed'. The legislation is comprehensive in scope, providing for the erection of homes for workers, the making of advances to workers for the purchase of homes, the erection of homes for letting on a weekly rental basis, the acquisition and development of land, the clearing of slums, the erection of hostels and the planning of community facilities.

The Commission consists of seven members of whom one must be the person occupying the office of General Manager of the Commission, one an officer of the State Public Service, one a representative of the building trades unions, one a registered builder (or a person qualified to be so registered), one a woman, one a discharged member of the Forces, and one a person with a wide knowledge of and experience in housing conditions in the State. The functions of the Commission include the State-wide provision of low-cost housing for purchase or rental by families of low and moderate income, under the authority of the State Housing Act and of the Commonwealth and State Housing Agreements; the administration of the Building Societies Act and the Housing Loan Guarantee Act; the administration of the War Service Homes Act (Commonwealth) as it applies to Western Australia; and the construction and maintenance of dwellings on behalf of the Government Employees' Housing Authority. During 1968 the McNess Housing Trust Act was repealed and the Commission, which formerly carried out the administrative, technical and other work associated with the operations of the Trust, took over its powers, obligations, assets and liabilities. Tables showing the operations of the Commission are shown on page 225.

**State Housing Act.** Under the authority of the *State Housing Act, 1946-1969*, the State Housing Commission uses funds provided by the State Government to build dwellings for sale and to lend money for home building. Eligibility for assistance is restricted to persons with income below a prescribed amount, which varies according to movements in the State basic wage, but north of 26°S. latitude the Minister may allow assistance to a family having a higher income. Loans of up to \$8,000 (or more, in some cases) may be made on a minimum deposit of \$200 including the ingoing fees (or less, at the discretion of the Commission), the maximum period of repayment being forty-five years. The rate of interest (30 June 1970) is 5½ per cent per annum reducible.

Various forms of assistance have been granted to encourage home ownership, including loans secured by mortgage, advances made under contract of sale, advances for acquiring homes under leasehold conditions, second mortgage loans and loans for the completion of partly-built dwellings.

**Commonwealth and State Housing Agreements.** The final draft of an agreement on housing between the Commonwealth and State Governments was prepared at the Conference of Premiers in August 1945 and was later ratified by Commonwealth and State legislation. The Commonwealth and State Housing Agreement Act, passed by the State Parliament in 1945, enabled Western Australia to participate in the Agreement, the purpose of which was to provide homes quickly, primarily for persons at the lower income levels, by standardisation of design and erection in large groups. The Agreement provided a broad basis of collaboration between the Commonwealth and the State with the Commonwealth providing advances of money, general direction on policy and co-ordination of effort and the State undertaking the actual site acquisition and planning, the construction of the dwellings, the selection of tenants and the detailed administrative work.

Further details of the 1945 Agreement are given on page 203 of the *Western Australian Year Book*, No. 8—1969 and in earlier issues.

With the expiry of the 1945 Agreement, the Commonwealth Parliament in 1956 passed the Housing Agreement Act providing 'financial assistance to the States for the purpose of housing' for a period of five years ending on 30 June 1961. The complementary State legislation authorising the State Government to enter into the Agreement is the Commonwealth and State Housing Agreement Act of 1956.

The 1956 Agreement required that, for the first two years of its operation, at least 20 per cent of the money allocated to the State was to be advanced to building societies and other approved institutions for lending to private persons for the building or purchase of homes, the proportion to be increased to not less than 30 per cent during the remainder of the period. The balance of the allocation was to be used by the State for the erection of houses for either rental or sale. The Commonwealth was entitled to specify that of this balance a portion not exceeding 5 per cent in any one year should be set aside for the erection of houses for serving members of the defence forces. The Commonwealth provided supplementary advances to the State equal to the amounts set aside for this purpose.

On the introduction of the 1956 Agreement, the State Housing Commission adopted the policy of offering for sale before occupancy one-half of the total number of houses built, the remainder being made available on a rental basis. The proportion has since been varied several times.

Under the provisions of Commonwealth and State legislation passed in 1961 the period of operation of the Commonwealth and State Housing Agreement was extended for a further five years to 30 June 1966. The 1961 Agreement incorporated all the main features of the earlier arrangement, with only minor modifications. The requirement that building societies and other approved institutions should receive at least 30 per cent of moneys allocated to a State was continued. Provision was made for the use of funds in excess of the previous maximum of 5 per cent of the balance for the erection of dwellings for members of the defence forces. Supplementary advances by the Commonwealth of amounts equal to the funds so used were continued.

In terms of the *Housing Agreement Act 1966* (Commonwealth) and the *Commonwealth and State Housing Agreement Act, 1966* (State) the operation of the Agreement, with minor amendments, has been extended until 30 June 1971.

Although Agreements subsequent to that of 1945 make no provision for rebates to tenants unable to pay the full rental, the State Government has continued the system and the cost of rental rebates was \$498,226 in 1969-70.

**Other Functions.** The State Housing Commission conducts certain other housing schemes and has completed, or is currently engaged on, other specific projects on behalf of the State Government. Under a 'Departmental Homes' scheme, which commenced in 1952-53, 1,622 houses were built in the period to 30 June 1970 for Government Departments and semi-government authorities. A Government Employees' Housing Scheme was introduced in 1958-59 and, up to 30 June 1970, had provided 426 rental houses in country areas. (See also the section *Government Employees' Housing Authority* on page 225.) The Commission has also undertaken the erection of flats for occupation by widows and by aged women pensioners, as well as cottage flats for aged married couples. Design and supervision services have been made available free of cost to several private charitable organisations which are developing pensioner housing schemes financed jointly by these organisations and the Commonwealth Government under the *Aged Persons Homes Act 1954-1969* (Commonwealth). The Commission has also been made responsible from time to time for special housing schemes for industry or major developmental projects.

### Operations of The State Housing Commission

In this section, a summary of the activities of The State Housing Commission is given. The first table on page 225 shows the number of housing units completed by the Commission in various categories during each year from 1965-66 to 1969-70. It also shows the numbers of housing units in connection with which the Commission provided design and supervisory services free of cost to private charitable organisations.

## THE STATE HOUSING COMMISSION—DWELLINGS CONSTRUCTION

Category	1965-66	1966-67	1967-68	1968-69	1969-70
Housing units (a) completed—					
State Housing Act .....	957	560	390	539	760
Commonwealth and State Housing Agreements .....	995	698	824	936	1,092
Departmental Homes—					
Native Welfare Department .....	76	82	73	60	84
Other Departments .....	79	113	74	128	114
Government Employees' Housing .....	34	49	34	52	119
Shire Building Scheme (b) .....				2	31
War Service Homes .....	118	143	141	138	77
Other (c) .....	36	111	8	....	21
Total .....	2,295	1,756	1,544	1,855	2,298
Other activities (d) .....	185	20	13	8	62

(a) Comprises houses and individual flat units. (b) For local government employees. (c) Comprises houses built by the Commission in terms of the *Laporte Industrial Factory Agreement Act, 1961-1965*, the *Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, 1960*, the *Exmouth Development Scheme and Project Development (Special Agreements Scheme)*. (d) The figures shown represent housing units built by charitable organisations in connection with which the Commission provided design and supervisory services.

THE STATE HOUSING COMMISSION  
REVENUE, EXPENDITURE AND FUNDS EMPLOYED  
(\$'000)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Revenue—					
Rentals .....	5,555	6,334	6,629	7,000	7,448
Profit on sale of—					
Houses and land .....	1,700	2,375	5,830	3,820	3,643
Sundry assets .....	6	3	7	3	6
Interest—					
Home purchase .....	3,079	4,252	4,731	5,319	5,787
Other .....	4	5	8	15	21
Recoup of management expenses .....	1,035	1,167	1,270	1,396	1,665
Fees and miscellaneous .....	328	449	337	408	473
Total Revenue .....	11,707	14,585	18,812	17,961	19,043
Expenditure—					
Interest—					
Loan capital .....	4,108	5,338	5,662	6,078	6,644
Debentures .....	302	381	502	592	681
Loan repayment .....	683	741	789	832	902
Management expenses .....	1,992	2,331	2,410	2,730	3,167
Rental outgoings .....	1,871	1,995	2,267	2,579	2,919
Other .....	71	108	89	58	66
Total Expenditure .....	9,027	10,894	11,719	12,869	14,379
Surplus .....	2,680	3,691	7,093	5,092	4,664
Funds employed at 30 June—					
Loan indebtedness—					
Government advances .....	142,914	153,496	165,414	179,592	193,043
Debenture issues .....	6,585	8,087	9,920	11,502	13,335
Commonwealth special grants .....	3,824	3,824	5,047	4,986	4,924
Accumulated surpluses and reserves .....	10,084	13,858	21,087	26,343	31,167
	163,407	179,265	201,468	222,423	242,469

## Government Employees' Housing Authority

The Government Employees' Housing Authority is established under the provisions of the *Government Employees' Housing Act, 1964* to provide adequate and suitable housing accommodation for employees of State Government Departments to which the Act applies.

The Authority is empowered to enter into an agreement with the State Housing Commission whereby the Commission shall act as its agent upon such terms as may be mutually agreed upon by the Authority and the Commission.

## War Service Homes

Under the *War Service Homes Act 1918-1968* the Commonwealth Government provides assistance in acquiring a home to persons who satisfy the eligibility conditions set out in the Act. Persons eligible for assistance include members of the Australian Forces

and nursing services enlisted or appointed for or employed on active service outside Australia or on a ship of war during the first and second World Wars, or who served in the war-like operations in Korea or Malaya, or who have served on 'special service' as defined in the *Repatriation (Special Overseas Service) Act 1962-1968* (e.g. South Vietnam). The categories of eligible persons also include the widow of an eligible person and, in certain circumstances, the widowed mother of a deceased eligible person and members of the mercantile marine service.

The State Housing Commission acts as the representative in Western Australia of the Director of War Service Homes.

#### WAR SERVICE HOMES SCHEME—OPERATIONS IN WESTERN AUSTRALIA

Year	Homes provided during year				Total homes provided from inception to end of year	Annual expenditure	Installments paid	Loans repaid
	By erection	By purchase	By discharge of mortgage	Total				
	No.	No.	No.	No.	No.	\$'000	\$'000	No.
1965-66	119	478	130	727	26,301	5,310	6,672	494
1966-67	144	359	112	615	26,916	4,509	7,512	632
1967-68	142	262	83	487	27,403	3,520	7,561	571
1968-69	138	240	108	486	27,889	3,750	8,280	727
1969-70	77	234	151	462	28,351	4,100	8,041	677

**State Housing Death Benefit Scheme Act.** The *State Housing Death Benefit Scheme Act, 1965* establishes, with effect from 20 February 1965, a scheme to provide benefits for the families of purchasers of dwellings who die leaving unpaid the whole or part of a liability to the State Housing Commission under a contract of sale or mortgage. The benefit is applied to the credit of the deceased purchaser's account, and the instalments payable during the unexpired term of the loan are reduced accordingly.

In the first year of operation (1965-66), twenty claims were admitted and a total of \$27,200 was paid in the form of assistance to purchasers. The corresponding figures for 1966-67 were thirty-three and \$30,922, for 1967-68, thirty-four and \$25,385, for 1968-69, twenty-five and \$23,000, and for 1969-70, twenty-six and \$22,600, respectively.

Additional details of the scheme are given on page 204 of the *Western Australian Year Book*, No. 8—1969 and in earlier issues.

#### Housing Loan Guarantee Act

The purposes of the *Housing Loan Guarantee Act, 1957-1968* are to encourage, through provisions for guarantees and indemnities, the building and the purchasing of new houses. Under this Act, the Government provides guarantees to lenders of funds to Building Societies and other approved financial organisations making advances to persons desiring to purchase or build their own home on low deposits.

The maximum rate of interest which an approved institution may charge on a loan to a borrower is  $7\frac{1}{2}$  per cent (December 1970). In the metropolitan region loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed \$10,000, the maximum loan being \$10,000. Outside the metropolitan region and south of the 26th parallel, loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed \$11,000, with a maximum loan of \$10,000. North of the 26th parallel, loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed \$17,500. The maximum loan permitted is \$13,000.

Complementary action has been taken by the Commonwealth in establishing the Housing Loans Insurance Corporation to foster high-ratio loans (see following section).



### Housing Loans Insurance Scheme

The Housing Loans Insurance Corporation was established by the *Housing Loans Insurance Act* 1965 (Commonwealth) to insure approved lenders against losses arising from the making of housing loans. The Corporation consists of a chairman (who is also managing director) and a deputy chairman, who are full-time members, and three part-time members, all of whom are appointed by the Governor-General. The main purpose of the activities of the Housing Loans Insurance Corporation is to assist people to obtain, as a single loan and at a reasonable rate of interest, the money they need and can afford to borrow to obtain a home suited to their requirements.

To encourage the making of high-ratio loans the Corporation will insure loans up to 95 per cent of valuation for houses, or 90 per cent for home units, where the loan does not exceed \$15,000. Where the loan exceeds \$15,000 the maximum insurable amount is 90 per cent of the valuation. A once-and-for-all premium of 1½ per cent of the amount of the loan is charged by the Corporation for loans of from 80 per cent to 95 per cent of valuation. For loans below 80 per cent of valuation, lesser premium rates apply. The premium is payable by the borrower, but lenders may agree to add it to the amount of the loan for repayment by the borrower over the duration of the loan. The maximum rate of interest that may be charged on insured loans (December 1970) is 8½ per cent per annum and the maximum period for repayment is forty years for houses, or twenty-five years for home units. The maximum rate of interest is kept under continuing review and may be varied by the Corporation, with the concurrence of the Minister for Housing, whenever changes appear to be warranted by movements in interest rates generally.

The Housing Loans Insurance Corporation insures loans that are made for a wide range of purposes in addition to the purchase or construction of a dwelling. The other purposes include alterations, extensions or improvements to a dwelling, and the provision or improvement of roads, kerbing and footpaths. An insured loan may be made only by an approved lender. Approved lenders are appointed by the Corporation from within approved classes of lenders specified by the Minister for Housing. The approved classes include banks, building societies, co-operative housing societies, friendly societies, life insurance companies, general insurance companies, trustee companies, and solicitors' and superannuation funds. The Housing Loans Insurance Corporation commenced its insurance operations in November 1965 and to 30 June 1970 had insured loans in Western Australia amounting to \$66·5 million (net).

#### HOUSING LOANS INSURANCE CORPORATION LOANS INSURED IN WESTERN AUSTRALIA

Purpose of loan	1965-66		1966-67		1967-68		1968-69		1969-70	
	Number	\$'000	Number	\$'000	Number	\$'000	Number	\$'000	Number	\$'000
Houses—										
For building a new house ....	6	55	57	589	162	1,828	334	4,181	513	7,000
For purchase of a new house .....	1	7	61	585	286	2,963	588	7,356	1,085	14,416
For purchase of a used house .....	17	109	107	911	281	2,658	448	5,033	728	9,433
For discharge of mortgage .....	....	....	7	46	17	199	13	141	48	649
Home units—										
For purchase of a new or used unit or discharge of mortgage .....	....	....	....	....	11	108	62	652	174	2,019
Other ....	....	....	....	....	15	184	38	482	59	542
Total ....	24	171	232	2,130	772	7,940	1,483	17,845	2,607	34,059

### Homes Savings Grants

The *Homes Savings Grant Act* 1964-1970 (Commonwealth), which came into operation on 28 May 1964, is designed to 'assist young married persons, and young widowed and divorced persons with dependent children, to purchase or build their own homes'. The Act is administered, subject to any directions of the Minister, by the Secretary to the Department of Housing.

The Act provides for the payment to eligible persons of a grant of \$1 for every \$3 saved for a home by one or both of the marriage partners. The grant takes the form of a gift free of tax and is payable in respect of a house, a home unit or a flat. The maximum benefit is \$500 payable on savings of \$1,500 which must be 'acceptable' savings within the meaning of the Act.

To qualify for the grant a person must be married or a widowed or divorced person with one or more dependent children; must have lived and saved in Australia for at least three years or was an Australian citizen throughout that period; must have entered into a contract to buy a home or to have a home built, or have begun to build a home; must be under thirty-six years of age at the date of marriage and at the date of entering into a contract to buy or build the home or at the date on which building began; must not have already received a grant and must not be, nor previously have been, married to a person who has received a grant during the marriage. An undischarged bankrupt or a person serving a term of imprisonment may not receive a grant.

The grant is not payable in respect of a home where the cost, including the cost of land, exceeds \$17,500.

Grants are financed from the National Welfare Fund and the first payments were made during the year ended 30 June 1965. Expenditure on grants in Western Australia amounted to \$698,698 in 1964-65, \$761,652 in 1965-66, \$666,181 in 1966-67, \$739,967 in 1967-68, \$759,890 in 1968-69, and \$589,284 in 1969-70.

### CONTROL OF BUILDING

Each of the local government authorities as constituted under the provisions of the *Local Government Act, 1960-1970* has power to exercise general control over the erection of buildings in its own district. The powers of local government authorities to control building derive from the Town Planning and Development Act and the Local Government Act.

The *Town Planning and Development Act, 1928-1970* gives local authorities the right to make by-laws covering such aspects of town planning as the purchase or reservation of land for thoroughfares, the density of dwelling accommodation per acre, the classification of areas for residential, commercial, industrial and recreational use, the prescription of building standards, and the general planning of new subdivisions. Town planning measures proposed by a local authority are subject to the approval of the Minister for Town Planning, who has the advice of a Town Planning Commissioner and a Town Planning Board.

The *Local Government Act, 1960-1970* contains provisions for the control of building which are compatible with those exercised under the Town Planning and Development Act but are in a more detailed form. Many local government authorities have applied the Uniform Building By-laws, and the erection of all buildings must be carried out in compliance with these by-laws. The Local Government Act provides that no new building or the alteration of an existing building may be begun before the plans have been approved by the local authority. The Governor may by Order, at the request of a local authority, suspend the operation of this provision in its district. Generally, in remote parts of the State prior approval of plans is required only in the case of building in town-site areas. Where any local authority refuses to approve plans, the Act provides that an appeal may be made to the Minister for Local Government, who has the power to modify or reverse the decision of the local authority. Other appeals or matters in dispute in relation to the control of building may be determined only by two referees, one of whom is appointed by the Governor and the other by the local authority concerned.

### BUILDING OPERATIONS

Since the end of the second World War, the Australian Statisticians have undertaken a quarterly collection of statistics of building operations. The first of these collections in Western Australia related to the quarter ended 30 September 1945.

The survey covers the activities of building contractors who undertake the construction of new buildings; the building operations of Commonwealth, State, semi-government and local government authorities; and work performed by owner-builders.

The statistics in succeeding pages relate only to the erection of buildings as distinct from the construction of railways, bridges, earthworks, etc.

In the following table the value of new buildings completed, classified according to the function each building is intended to serve, is shown for the period 1965-66 to 1969-70. The values shown for each type of building exclude the value of land and represent the estimated value of the buildings on completion.

VALUE OF NEW BUILDINGS COMPLETED: TYPE OF BUILDING  
(\$'000)

Type of building	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Houses—</b>					
Material of outer walls—					
Brick, brick veneer, concrete, stone .....	46,895	61,942	79,812	110,796	130,842
Wood (weatherboard, etc.) .....	107	107	115	69	355
Fibro-cement .....	10,822	14,985	17,147	21,865	19,797
Other .....	265	1,044	295	546	307
<b>Total, Houses .....</b>	<b>58,089</b>	<b>78,078</b>	<b>97,370</b>	<b>133,276</b>	<b>151,300</b>
<b>Flats .....</b>	<b>9,096</b>	<b>9,322</b>	<b>12,577</b>	<b>22,406</b>	<b>40,519</b>
<b>Total, Houses and flats .....</b>	<b>67,185</b>	<b>87,400</b>	<b>109,947</b>	<b>155,682</b>	<b>191,819</b>
<b>Other new buildings—</b>					
Hotels, hostels, etc. ....	3,211	4,990	8,759	11,417	14,815
Shops .....	4,860	7,692	5,079	4,052	7,501
Factories .....	9,631	9,841	15,061	15,845	16,615
Office premises .....	10,576	7,093	14,608	10,885	14,294
Other business premises .....	6,999	7,150	6,809	12,574	15,968
Education .....	8,459	10,477	12,051	14,122	13,297
Religion .....	965	1,147	683	1,644	995
Health .....	7,415	8,927	3,436	7,373	5,949
Entertainment and recreation .....	2,247	3,080	3,670	3,848	6,033
Miscellaneous .....	8,630	14,338	15,299	17,391	16,110
<b>Total, Other new buildings .....</b>	<b>62,993</b>	<b>74,735</b>	<b>85,456</b>	<b>99,152</b>	<b>111,577</b>
<b>TOTAL, ALL NEW BUILDINGS .....</b>	<b>130,178</b>	<b>162,135</b>	<b>195,403</b>	<b>254,833</b>	<b>303,397</b>

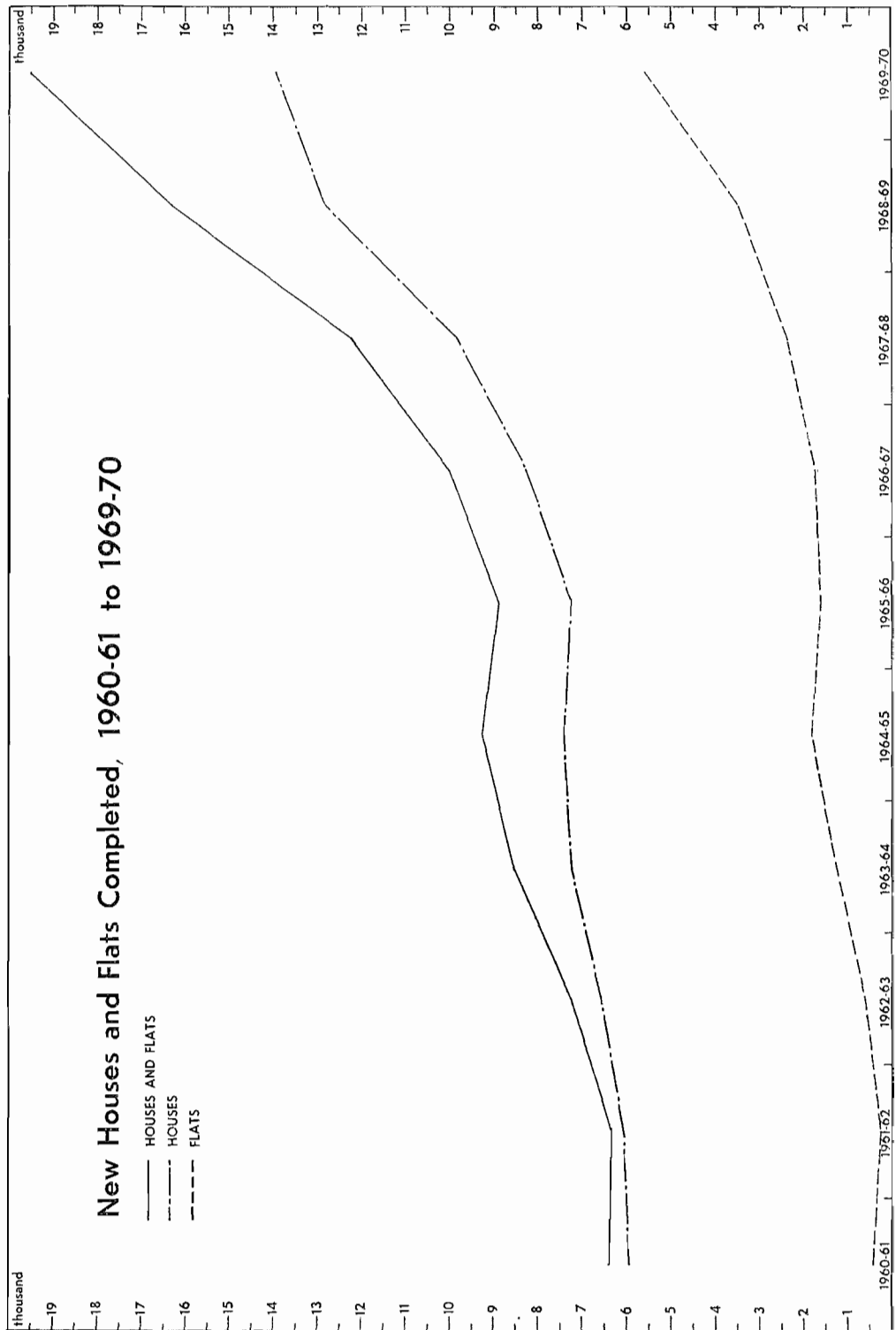
The following table shows the number of new houses and flats completed, according to ownership, in each of the five years 1965-66 to 1969-70. A building is classified as 'private' or 'government' according to ownership at date of commencement. Thus 'government' includes buildings erected for Commonwealth and State Governments, semi-government and local government authorities, either by contractors or by day labour, whether these buildings are for their own use or for rental or sale after completion. Houses erected for private ownership, or which are financed or supervised by government authorities but erected for particular persons, are classified as 'private'.

NUMBER OF NEW HOUSES AND FLATS COMPLETED ACCORDING TO OWNERSHIP

Year	Private ownership (a)			Government ownership (a)			Total		
	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats
1965-66 .....	5,228	1,547	6,775	2,037	77	2,114	7,265	1,624	8,889
1966-67 .....	6,676	1,730	8,406	1,596	12	1,608	8,272	1,742	10,014
1967-68 .....	8,533	2,382	10,915	1,325	10	1,335	9,858	2,392	12,250
1968-69 .....	11,007	3,337	14,344	1,833	154	1,987	12,840	3,491	16,331
1969-70 .....	12,384	4,915	17,299	1,549	681	2,230	13,933	5,596	19,529

(a) See letterpress preceding table.

As an indication of the distribution of building activity throughout the State, the number of new houses completed in each Statistical Division during 1965-66 to 1969-70 is shown in the following table.



## NUMBER OF NEW HOUSES COMPLETED IN STATISTICAL DIVISIONS

Statistical Division	1965-66	1966-67	1967-68	1968-69	1969-70
Perth Statistical Division	5,098	5,330	6,812	9,246	10,463
Other Divisions—					
South-West	687	696	820	834	973
Southern Agricultural	334	387	359	384	365
Central Agricultural	354	360	367	407	331
Northern Agricultural	367	491	513	659	637
Eastern Goldfields	121	223	382	489	486
Central	25	14	11	14	16
North-West	107	277	110	61	146
Pilbara	72	401	423	623	416
Kimberley	100	93	61	123	100
Total	2,167	2,942	3,046	3,594	3,470
WESTERN AUSTRALIA	7,265	8,272	9,858	12,840	13,933

A further measure of building activity is that of 'value of work done' which is the estimated value of work actually carried out on buildings during the period. For any building, the sum of these values obtained during its construction equals the value of the building on completion. The figures in the following table include estimates for the value of work done on owner-built houses.

VALUE OF WORK DONE ON NEW BUILDINGS  
(\$'000)

Type of building	1965-66	1966-67	1967-68	1968-69	1969-70
Houses and flats—					
Houses	60,866	80,719	105,991	137,168	154,761
Flats	8,033	11,056	15,328	29,219	44,783
Total, Houses and flats	68,899	91,775	121,319	166,386	199,545
Other new buildings—					
Hotels, hostels, etc.	3,677	6,551	11,620	10,425	16,574
Shops	5,918	4,417	4,750	5,234	8,434
Factories	10,125	10,122	16,593	15,334	16,052
Office premises	7,890	9,293	13,246	15,111	26,692
Other business premises	6,326	7,055	8,598	13,499	18,937
Education	8,879	11,183	13,494	12,436	15,829
Religion	1,122	1,015	981	1,255	1,068
Health	6,146	5,774	5,897	7,871	12,937
Entertainment and recreation	2,247	3,379	3,904	4,463	6,539
Miscellaneous	12,254	13,162	12,034	17,994	20,336
Total, Other new buildings	64,584	71,951	91,118	103,625	143,398
TOTAL, ALL NEW BUILDINGS	133,483	163,726	212,437	270,012	342,943

## Employment in Building

Details of building employment are given in the following table. The figures shown relate to persons working on the jobs of contractors who undertake the erection of new buildings and on the jobs of government authorities which erect new buildings on their own account. They include persons actually engaged on alterations, additions, repairs, and maintenance when these jobs are undertaken by such contractors and authorities. The figures also include the number of persons working on new private buildings (other than houses) erected without the services of a contractor responsible for the whole job.

Informants are asked to supply details of all persons employed on their jobs on a specified day, including working principals, men working as or for sub-contractors, and men temporarily laid off on account of weather. Because of the intermittent employment of various types of sub-contractors on any particular job, it is sometimes difficult for informants to provide precise particulars of the number of sub-contractors and sub-contractor employees working on their jobs on the specified day. This factor may cause some under-

statement in the figures shown in the tables. In other cases, because of frequent movement between jobs of some types of tradesmen (such as electricians) who may work on several jobs on the one day, some duplication may occur.

The figures *exclude* persons working on owner-built houses, and employees of building firms which undertake only alterations, additions, repairs, and maintenance.

## EMPLOYMENT IN BUILDING (a)

Classification	End of June—				
	1966	1967	1968	1969	1970
Occupational status—					
Contractors ....	574	639	697	697	673
Sub-contractors....	1,881	2,539	2,882	3,731	3,132
Wage earners ....	9,893	11,327	13,233	14,773	15,788
Total ....	12,348	14,505	16,812	19,201	19,593
Occupation—					
Carpenters ....	3,591	4,026	4,569	5,007	5,114
Bricklayers ....	1,584	1,966	2,469	2,954	2,463
Painters ....	1,105	1,341	1,494	1,723	1,611
Electricians ....	825	1,014	1,126	1,373	1,364
Plumbers ....	1,064	1,275	1,577	1,711	1,695
Builders' labourers	2,047	2,210	2,602	2,978	3,171
Other ....	2,132	2,673	2,975	3,455	4,175
Total ....	12,348	14,505	16,812	19,201	19,593

(a) See letterpress preceding table.

## DWELLINGS COMPLETED IN AUSTRALIA

The following table shows the numbers of new houses and flats completed in each of the Australian States and Territories during the year 1969-70. In Western Australia the number of new houses and flats completed per thousand of mean population was 20·23, compared with 10·69 in the rest of Australia and 11·43 in Australia as a whole. The proportion of houses to flats completed in Western Australia was 2·5:1, and throughout Australia 2·3:1.

NEW HOUSES AND FLATS COMPLETED—AUSTRALIAN STATES AND TERRITORIES  
1969-70

State or Territory	Houses	Flats (a)	Houses and flats (a)		
			Total number completed	Proportion of Australian total (per cent)	Per thousand of mean population
New South Wales ....	29,679	18,774	48,453	34·07	10·70
Victoria ....	24,702	13,992	38,694	27·21	11·32
Queensland ....	14,699	2,436	17,135	12·05	9·60
South Australia ....	7,504	2,657	10,161	7·15	8·80
Western Australia ....	13,933	5,596	19,529	13·73	20·23
Tasmania ....	2,861	502	3,363	2·36	8·61
Northern Territory ....	954	471	1,425	1·00	20·39
Australian Capital Territory	3,192	260	3,452	2·43	27·05
AUSTRALIA ....	97,524	44,688	142,212	100·00	11·43

(a) Individual living units.

## Chapter V—continued

### Part 5—Social Benefits, Pensions and Welfare Services

NOTE. The rates and the conditions applying to payment of the several benefits dealt with in this Part are described as they existed at 1 January 1971. The rates of benefit current at 1 January of each of the years 1967 to 1971 are summarised in a table appearing at the end of each of the relevant sections.

The information given in this Part is intended to serve as a general guide to the main provisions relating to social benefits and relief payments provided by the Commonwealth and State Governments. For more complete details of the Commonwealth benefits, reference should be made to the *Official Year Book of the Commonwealth of Australia*.

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Social benefits are provided by the Commonwealth Government under a series of Acts, and their payment is financed from a National Welfare Fund. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

War and service pensions are paid by the Commonwealth Government from the Consolidated Revenue Fund.

The *Social Services Act* 1947-1970 provides for the payment of age and invalid pensions, widows' pensions, unemployment, sickness, and special benefits, maternity allowances and child endowment; the *Repatriation Act* 1920-1970, for war pensions and service pensions; and the *Tuberculosis Act* 1948, for allowances to sufferers from tuberculosis as well as assistance to the States in a national campaign against the disease.

Health services, such as medical, hospital and pharmaceutical benefits, are provided under the *National Health Act* 1953-1970.

War pensions, child endowment, maternity allowances and health service benefits, other than tuberculosis allowances, are paid regardless of income received from other sources or of property owned by the claimant. These payments do not affect eligibility for other social services benefits.

Age and invalid pensions (other than pensions paid to blind persons), widows' pensions and service pensions are subject to a means test in respect of both income and property. Only income is taken into account in assessing eligibility for unemployment and sickness benefits or tuberculosis allowances. Generally, a person receiving a pension or an allowance under one category is ineligible for benefit under any other.

Under the provisions of legislation passed in 1963 and 1964 certain allowances payable on account of children were extended to include 'student' children. For the purposes of the *Social Services Act* 1963 and the *Repatriation Act* 1963 the term 'student child' meant a dependent child aged between sixteen and eighteen years receiving full-time education at a school, college or university, and the allowance continued until the end of the calendar year in which the child attained the age of eighteen years. The Acts made provision for payment in respect of student children of age pensioners, invalid pensioners, widow pensioners and service pensioners. The benefit was extended to include also student children of recipients of tuberculosis allowances. The *Social Services Act* 1964 provides for the payment of child endowment on account of students until the twenty-first birthday.

In terms of amendments made to the Social Services Act and the Repatriation Act in 1965, the payment of allowances in respect of student children, which previously ceased at the end of the calendar year in which the child attained the age of eighteen years, was extended until the twenty-first birthday.

The State Government makes certain payments for the relief of women and others in necessitous circumstances which in most cases supplement benefits provided by the Commonwealth Government.

## SOCIAL SERVICES BENEFITS

### Age and Invalid Pensions

Age pensions were first paid on 1 July 1909 and invalid pensions on 15 December 1910. Pensions are payable subject to a means test which does not, however, apply to pensions paid to persons who are permanently blind.

The age pension is payable to men aged sixty-five years and over and to women aged sixty years and over who have resided in Australia continuously for at least ten years, which need not be immediately prior to the date of claim for a pension. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

Invalid pensions are payable to persons aged sixteen years and over who have resided in Australia for a continuous period of not less than five years (including certain absences), and are permanently incapacitated for work to the extent of at least 85 per cent or are permanently blind. If the incapacity or blindness first occurred outside Australia, except during a temporary absence, a period of not less than ten years' continuous residence is necessary. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

### AGE AND INVALID PENSIONS—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Number of pensioners at 30 June—</b>					
Age—					
Males ....	13,020	13,796	14,724	15,257	17,329
Females ....	30,856	31,945	34,126	35,175	38,688
Persons ....	43,876	45,741	48,850	50,432	56,017
Invalid—					
Males ....	4,817	4,641	4,682	4,746	4,453
Females ....	3,758	3,666	3,628	3,667	3,480
Persons ....	8,575	8,307	8,310	8,413	7,933
	\$	\$	\$	\$	\$
<b>Average weekly pension at 30 June (a)—</b>					
Age ....	11.26	12.30	12.09	12.85	13.55
Invalid ....	12.18	13.30	13.36	14.67	15.76
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Amount paid during year (b) ....</b>	30,760	33,794	36,418	39,404	44,637

(a) Includes allowances and supplementary assistance, of pensioners and to pensioner inmates of these homes. (b) Includes amounts paid to benevolent homes for maintenance. Includes also allowances and supplementary assistance.

The maximum rate of pension payable to an unmarried person (*i.e.* single, widowed or divorced) is \$15.50 per week. This rate applies also to a married pensioner where the spouse is not receiving an age or invalid pension, a tuberculosis allowance or a service pension. In the case of a married couple, both of whom are pensioners, the maximum weekly



rate is \$13.75 for each pensioner. A wife's allowance may be granted, subject to the means test, to the wife of an invalid pensioner or of an age pensioner permanently incapacitated or blind, or if she has the care of a child and is not receiving an age or invalid pension, or a service pension. The maximum weekly rate of a wife's allowance is \$7. The pension may also be increased by \$2.50 per week, subject to the means test, for the first child under sixteen years of age and \$3.50 per week for each other such child. These allowances apply also to student children of a pensioner. A guardian's allowance is payable to widowers and other unmarried age or invalid pensioners who have one or more children in their care. The maximum weekly rate of the allowance is \$4, which may be increased to \$6 where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention.

If the pensioner pays rent and is entirely or substantially dependent on the pension, supplementary assistance to a maximum of \$2 per week, subject to a means test, may be paid to a single pensioner or to a married pensioner whose spouse does not receive a pension or tuberculosis allowance.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

**Rehabilitation Service.** Since 10 December 1948 a rehabilitation service has been provided for invalid pensioners and others whose disabilities are remediable and who have reasonable prospects of engaging in a suitable vocation within three years. With the aim of restoring disabled persons to independence and usefulness, the service provides the necessary treatment and training together with books, tools and equipment. Rehabilitation and training allowances are paid.

The *Social Services Act* 1968, operative from 27 September 1968, provides for a scheme of vocational training for Class 'A' and Class 'B' widow pensioners (see letter-press *Widows' Pensions* below). In addition to her pension, a trainee receives a training allowance of \$4 per week and, where appropriate, a living-away-from-home allowance not exceeding \$5 per week. Tuition fees and fares to and from the place of training are paid for under the scheme, and books and other necessary equipment are provided.

**Funeral Benefit.** From 1 July 1943, a funeral benefit of up to \$20 has been payable to persons who are required to meet the funeral expenses of an age or invalid pensioner. This benefit is increased to a maximum of \$40 where a person receiving either an age, invalid or widow's pension, or a wife's allowance, is required to meet the funeral expenses of another pensioner or those of a non-pensioner spouse or dependent child.

### **Widows' Pensions**

Widows' pensions have been paid since 30 June 1942 and are granted subject to a means test and certain residential qualifications. The term 'widow' is extended to include deserted wives, divorcees and women who have been deprived of support by the insanity or imprisonment of the husband.

Pensions and allowances payable to widows vary according to classes designated 'A', 'B' and 'C' in terms of the Social Services Act. To qualify for pension under Class 'A' a widow must have the custody, care and control of one or more children who may be either less than sixteen years of age or student children as defined in the Act. The maximum rate of pension is \$22 per week (including a mother's allowance of \$4 per week, and \$2.50 per week in respect of the first child). An additional allowance of \$3.50 per week is payable for each child other than the first. The mother's allowance may be increased to \$6 per week where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention. A Class 'B' pensioner is one who has not the custody, care and control of any child under sixteen years of age (or any student child) and who is at least

fifty years of age, or is not less than forty-five years of age when her Class 'A' pension ceases because she no longer has a child in her custody, care and control. The maximum rate of pension payable is \$13.75 per week. A Class 'C' pensioner is a widow who, at the time of her husband's death or within twenty-six weeks thereafter, is less than fifty years of age, has not the custody, care and control of any child under sixteen years of age (or any student child), and is in necessitous circumstances. Pension at the rate of \$13.75 per week may be paid for a period of twenty-six weeks immediately after the husband's death but, if the widow is pregnant, may be continued until the birth of the child, when she may qualify for a Class 'A' pension.

A widow pensioner who pays rent and is considered to be entirely or substantially dependent on her pension may, subject to a means test, receive supplementary assistance up to a maximum of \$2 per week.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

#### WIDOWS' PENSIONS—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of pensions current at 30 June—					
Class 'A' pensioners (a) ....	2,288	2,333	2,520	2,579	2,903
Class 'B' pensioners (b) ....	2,775	2,885	2,950	2,972	3,178
Class 'C' pensioners (c) ....	8	10	12	8	5
Total ....	5,071	5,228	5,482	5,559	6,086
Average weekly pension at 30 June (d) ....	\$ 13.97	\$ 15.43	\$ 15.33	\$ 16.98	\$ 18.41
Amount paid during year (d) ....	\$'000 3.602	\$'000 4.011	\$'000 4.346	\$'000 4.786	\$'000 5.600

(a) Widow having custody, care and control of one or more children aged less than 16 years, or of a student child or children.  
 (b) Widow aged 50 years or over with no dependent children.  
 (c) Widow, other than Class 'A' or 'B', in necessitous circumstances following death of husband.  
 (d) Includes allowances and supplementary assistance.

#### Unemployment, Sickness and Special Benefits

Payments to persons unemployed or temporarily incapacitated for work by sickness or accident were introduced on 1 July 1945 and are subject to residential qualifications and a means test in respect of income but not of property. Unemployment and sickness benefits are paid to males over sixteen and under sixty-five years of age and to females over sixteen and under sixty years of age.

The maximum weekly rate of benefit for an unmarried claimant over twenty-one years of age is \$10 per week. For unmarried juveniles, the rate is \$4.50 for those aged under eighteen years and \$6 for those aged eighteen and under twenty-one years. A married claimant with dependent spouse may receive \$17 per week, with an additional \$2.50 per week for the first dependent child under sixteen years of age and \$3.50 per week for each other such child. Benefits are reducible in accordance with a means test in respect of income. For unemployment benefit purposes, the incomes of both husband and wife are taken into account. For sickness benefit purposes, any payment received on account of the sickness from an approved friendly society or similar body is disregarded. The rate of sickness benefit for adults, married juveniles, and juveniles without a parent in Australia may be increased after six weeks to \$15.50 per week. The sickness benefit payable to an unmarried juvenile after six weeks is \$10 per week. A married woman is not eligible to receive a sickness benefit if it is reasonably possible for her husband to maintain her. Where her husband is able to maintain her only partially a benefit may be paid at such rate as is considered reasonable in the circumstances. There is a waiting period of seven days, during which time neither unemployment nor sickness benefit is payable, but this waiting period is not required to be served more than once on any period of thirteen weeks.

Special benefits have been provided since 1 July 1945. A special benefit may be granted to a person not qualified for unemployment or sickness benefit and who receives no Commonwealth pension if, on account of age, physical or mental disability or for any other reason, he is unable to earn a sufficient livelihood for himself and his dependants. Special benefits are also paid to migrants who are in accommodation centres and are awaiting their first placement in employment. The maximum rate for special benefit is the same as for unemployment benefit.

## UNEMPLOYMENT, SICKNESS AND SPECIAL BENEFITS—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Unemployment benefit—</b>					
Number admitted to benefit during year ....	5,883	6,573	6,686	6,521	6,362
Average number on benefit at end of each week ....	785	718	608	524	474
Number on benefit at end of year—					
Males ....	389	387	391	226	598
Females ....	354	398	355	243	205
Persons ....	743	785	746	469	803
<b>Sickness benefit—</b>					
Number admitted to benefit during year ....	5,756	5,759	5,796	5,057	5,358
Average number on benefit at end of each week ....	752	729	677	525	492
Number on benefit at end of year—					
Males ....	544	436	463	401	400
Females ....	224	251	176	84	119
Persons ....	768	687	639	485	519
<b>Special benefit (a)—</b>					
Number admitted to benefit during year ....	78	69	133	805	817
Average number on benefit at end of each week ....	107	81	72	230	231
Number on benefit at end of year—					
Males ....	24	16	14	19	23
Females ....	76	54	96	230	228
Persons ....	100	70	110	249	251
<b>Benefits paid during year—</b>	\$'000	\$'000	\$'000	\$'000	\$'000
Unemployment ....	368	374	304	309	407
Sickness ....	457	445	420	389	508
Special (a) ....	47	36	33	97	123
<b>Total (a) ....</b>	<b>872</b>	<b>855</b>	<b>757</b>	<b>795</b>	<b>1,039</b>

(a) Excludes special benefits to migrants in accommodation centres.

## Maternity Allowances

Maternity allowance payments were introduced on 10 October 1912. The allowance is payable to a woman who, at the date of giving birth to a child (live or stillborn), is residing in Australia. There is no means test.

## MATERNITY ALLOWANCES—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Number of claims paid—</b>					
<b>Single births: amount of allowance—</b>					
\$30 ....	5,698	6,447	6,909	7,770	7,682
\$32 ....	7,665	7,848	8,723	9,296	9,432
\$35 ....	3,232	3,006	3,149	3,083	2,990
<b>Multiple births: amount of allowance—</b>					
Twins—					
\$40 ....	48	56	65	77	63
\$42 ....	87	111	73	94	90
\$45 ....	31	41	48	59	37
Triplets—					
\$50 ....	1	....	....	....	....
\$52 ....	1	....	2	1	....
\$55 ....	1	1	....	1	....
<b>Total number of claims paid ....</b>	<b>16,764</b>	<b>17,510</b>	<b>18,969</b>	<b>20,381</b>	<b>20,294</b>
<b>Amount paid ....</b>	<b>\$'000 536</b>	<b>\$'000 559</b>	<b>\$'000 605</b>	<b>\$'000 648</b>	<b>\$'000 645</b>

The allowance is \$30 where there are no other children, \$32 where the mother has one or two other children under sixteen years of age, or \$35 where she has three or more other such children. The amount payable is increased by \$10 for each additional child of a multiple birth. Part of the allowance may be paid four weeks before the expected date of birth, and the balance immediately after the birth.

### Child Endowment

Child endowment was introduced on 1 July 1941. The payment of endowment is not subject to a means test. A person who is resident in Australia and has the custody, care and control of one or more children under the age of sixteen years, or of a student child or children, is qualified to receive endowment in respect of each child. Approved institutions of which children are inmates are similarly entitled.

At the inception of the scheme, the first child of a family was not endowed. From 20 June 1950 child endowment has applied in respect of the first or only child of a family at the rate of fifty cents per week. Endowment for the second child is at the rate of \$1 per week, and for the third child, \$1.50 per week. For each subsequent child the endowment increases progressively by twenty-five cents, so that the weekly rate payable for the fourth child is \$1.75, for the fifth child \$2, and so on. Endowment is payable to a person having the custody, care and control of a student child (or children) aged sixteen years but under twenty-one years who is receiving full-time education at a school, college or university and is not in employment or engaged in work on his own account. Endowment is at the rate of \$1.50 per week for each such child.

An approved institution is qualified to receive \$1.50 per week in respect of each child (including student children) in its care.

### CHILD ENDOWMENT—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Endowed families at 30 June—					
Number of claims in force in respect of—					
Children under 16 years of age ....	120,973	125,554	130,389	136,454	140,719
Student children ....	8,092	9,517	10,106	10,486	10,495
Number of endowed children—					
Children under 16 years of age ....	282,827	291,705	302,516	313,857	317,904
Student children ....	8,679	10,579	10,870	11,290	11,367
Average number of endowed children per claim—					
Children under 16 years of age ....	2.34	2.32	2.32	2.30	2.26
Student children ....	1.07	1.11	1.08	1.09	1.08
Institutions at 30 June—					
Number of institutions ....	64	66	71	73	70
Number of endowed child inmates—					
Children under 16 years of age ....	3,707	3,923	3,976	4,290	4,154
Student children ....	90	118	129	156	172
Total number of endowed children at 30 June—					
In families ....	291,506	302,284	313,386	325,147	329,271
In institutions ....	3,797	4,041	4,105	4,446	4,326
Total ....	295,303	306,325	317,491	329,593	333,597
Amount paid during year (a) (b) ....	\$'000 13,624	\$'000 (c) 15,498	\$'000 14,845	\$'000 15,540	\$'000 (c) 17,894

(a) Includes payments to institutions. (b) A number of endowments are paid every 12 weeks. During two years in every three, there are four such payments each year, and five in the third year. (c) Expenditure in this year includes five 12-weekly payments; see note (b).

### Reciprocal Arrangements with other Countries

Reciprocal arrangements in respect of payment of age and invalid pensions, widows' pensions, unemployment and sickness benefits and child endowment have been in force between the Governments of Australia and New Zealand since 1 July 1949 and between Australia and the United Kingdom since 7 January 1954.

## Summary of Rates, 1967 to 1971

The following table shows the maximum weekly rates payable at 1 January of the years 1967 to 1971 in respect of age, invalid and widows' pensions, unemployment and sickness benefits, and child endowment. The rates applying to certain allowances and other forms of assistance are also shown.

SOCIAL SERVICE PAYMENTS—MAXIMUM WEEKLY RATES  
(\$)

Pension, allowance or benefit	At 1 January—				
	1967	1968	1969	1970	1971
Age and invalid pensions (a)—					
Unmarried person .....	13.00	13.00	14.00	15.00	15.50
Married couple—					
Where both eligible .....	23.50	23.50	25.00	26.50	27.50
Where one person eligible .....	13.00	13.00	14.00	15.00	15.50
Wife's allowance .....	6.00	6.00	7.00	7.00	7.00
Payments in respect of dependent children (b) (c)—					
First child under 16 years of age .....	1.50	1.50	2.50	2.50	2.50
Each other child under 16 years of age .....	1.50	1.50	2.50	3.50	3.50
Guardian's allowance—					
Where there is a child aged under 6 years or an invalid child requiring full-time care .....	4.00	4.00	4.00	6.00	6.00
Other cases .....	4.00	4.00	4.00	4.00	4.00
Widows' pensions—					
Class A (widow with dependent child or children) .....	13.00	13.00	14.00	15.00	15.50
Mother's allowance—					
Where there is a child aged under 6 years or an invalid child requiring full-time care .....	4.00	4.00	4.00	6.00	6.00
Other cases .....	4.00	4.00	4.00	4.00	4.00
Payments in respect of dependent children (b) (c)—					
First child under 16 years of age .....	1.50	1.50	2.50	2.50	2.50
Each other child under 16 years of age .....	1.50	1.50	2.50	3.50	3.50
Class B (widow aged 50 years or more) .....	11.75	11.75	12.50	13.25	13.75
Class C (widow under 50 years of age in necessitous circumstances) .....	11.75	11.75	12.50	13.25	13.75
Supplementary assistance .....	2.00	2.00	2.00	2.00	2.00
Unemployment and sickness benefits—					
Unmarried person—					
Aged 16 and under 18 years .....	3.50	3.50	3.50	4.50	(d) 4.50
Aged 18 and under 21 years .....	4.75	4.75	4.75	6.00	(d) 6.00
Aged 21 years or more .....	8.25	8.25	8.25	10.00	(e) 10.00
Married person .....	8.25	8.25	8.25	10.00	(e) 10.00
Dependent spouse .....	6.00	6.00	6.00	7.00	7.00
Payments in respect of dependent children (b) (c)—					
First child under 16 years of age .....	1.50	1.50	1.50	2.50	2.50
Each other child under 16 years of age .....	1.50	1.50	1.50	3.50	3.50
Child endowment—					
Children under 16 years of age—					
First child .....	0.50	0.50	0.50	0.50	0.50
Second child .....	1.00	1.00	1.00	1.00	1.00
Third child .....	1.50	1.50	1.50	1.50	1.50
Fourth and each subsequent child .....	1.50	(f)	(f)	(f)	(f)
Student child aged 16 and under 21 years .....	1.50	1.50	1.50	1.50	1.50

(a) The rates shown for 1 January 1968 and later apply also to the recipient of a sheltered employment allowance (see page 211). Payment of this allowance commenced on 6 July 1967.

(b) In addition to child endowment. (c) In the case of a 'student child', i.e. where the child is a full-time student and dependent on the pensioner, payment continues until the twenty-first birthday.

(d) The rate of sickness benefit may be increased after six weeks to \$10 per week. (e) The rate of sickness benefit may be increased after six weeks to \$15.50 per week.

(f) For the fourth and each subsequent child the rate increases progressively by 25 cents, so that the rate for the fourth child is \$1.75, for the fifth child \$2, and so on.

## WAR AND SERVICE PENSIONS

## War Pensions

The *Repatriation Act 1920-1970* provides for the payment of pensions to ex-servicemen (and ex-servicewomen) and their dependants in respect of disability or death accepted as due to war service.

For members of the forces who served outside Australia, or within Australia in circumstances which can be regarded as combat against the enemy, pensions are payable in respect of incapacity or death which may result from any occurrence during the whole period of service. If a member served only in Australia, incapacity or death to be pensionable must have been attributable to service. In all cases, providing a member had at least

six months' camp service, a condition which existed at the time of enlistment may be pensionable if it is considered that the condition was aggravated by service. If, at any time after discharge, an ex-serviceman who served in a theatre of war becomes incapacitated or dies from pulmonary tuberculosis, war pension is payable as if the incapacity or death resulted from an occurrence on service.

The main classes of war pensions are the special (T.P.I.) rate, the intermediate rate, the general rate and the war widow's pension. The special rate of war pension, \$38 per week, is payable to those who are totally and permanently incapacitated and are unable to earn more than a negligible percentage of a living wage. The intermediate rate of war pension, \$28 per week, is payable to an ex-serviceman who, because of the severity of a war-caused incapacity, can work only part-time or intermittently and, in consequence, is unable to earn a living wage. The wife of a pensioner receiving the special rate or the intermediate rate of war pension is paid \$4.05 per week plus \$1.38 per week for each child under sixteen years of age. The general rate of war pension is the rate payable to those who suffer war-caused disabilities but are not thereby prevented from working, although their earning capacity may be reduced. The actual pension payable is assessed in accordance with the degree of incapacity suffered. The maximum (100 per cent) rate is \$12 per week. A wife and children also receive pensions at rates according to the assessed degree of incapacity of the ex-serviceman, the maximum being \$4.05 per week for a wife and \$1.38 per week for each child under sixteen years of age. A war widow's pension at the rate of \$15.50 per week is paid to the widow of an ex-serviceman who died as a result of war service. Children under the age of sixteen years are pensionable at a weekly rate of \$6 for the first child, and \$5 for the second and each subsequent child. Where both parents are dead, pension at the rate of \$12 per week is payable for each child under the age of sixteen years.

Provision is also made for the payment of certain allowances, among which are a domestic allowance, special compensation allowance, attendant's allowance, and allowances for clothing and recreation transport.

Details of the number of war pensions current in Western Australia at 30 June and the amount paid in pensions during each of the five years ended 1969-70 are shown in the following table.

WAR PENSIONS (a)—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of pensions current at 30 June—					
Incapacitated ex-servicemen .....	19,188	19,038	18,849	18,668	18,449
Dependants of incapacitated ex-servicemen .....	31,016	29,532	28,008	26,529	25,257
Dependants of deceased ex-servicemen .....	4,317	4,356	4,300	4,295	4,254
Miscellaneous (b) .....	39	41	36	34	33
Total .....	54,560	52,967	51,193	49,526	47,993
Amount paid in pensions during year (c) .....	\$'000 12,637	\$'000 11,889	\$'000 11,934	\$'000 13,061	\$'000 12,811

(a) Including pensions in respect of ex-servicewomen. (b) Pensions payable under Seamen's War Pensions and Allowances Act and 'Act of grace' pensions. (c) Includes widows' allowances.

### Service Pensions

The payment of service pensions is provided for in the *Repatriation Act* 1920-1970 and has operated since 1 January 1936. A means test is applied in respect of income and property.

A service pension may be granted to a former member of the forces who is suffering incapacity from pulmonary tuberculosis, or who has served in a theatre of war (or, in the case of an ex-servicewoman, served abroad) and has attained the age of sixty years (or, in the case of an ex-servicewoman, fifty-five years) or is permanently unemployed.

The maximum weekly rate of pension payable to an ex-serviceman (or an ex-servicewoman) is \$15.50. This rate applies to an unmarried person (*i.e.* single, widowed or divorced) or to a married person where the spouse is not receiving a Commonwealth pension or allowance. Where the spouse is receiving any such benefit the maximum rate is \$13.75 per week. The maximum pension payable to the wife of an ex-serviceman is \$7 per week. The rate for eligible children is \$2.50 for the first child, and twenty-five cents for each additional child, up to and including the fourth child of the family. An eligible child is a child under sixteen years of age, or a child up to twenty-one years who is not receiving an invalid pension and is undergoing full-time education. The service pension of an ex-serviceman is increased by \$3.50 per week for each eligible child, other than the first, whether or not such children qualify for pension in their own right.

A service pensioner who is unmarried, widowed, divorced, or married but separated, and who has care and control of one or more children, qualifies for a guardian's allowance. The maximum weekly rate of the allowance is \$4, which may be increased to \$6 where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention.

Supplementary assistance up to a maximum of \$2 per week may be paid to an ex-serviceman who is paying rent, or for lodging, or board and lodging.

The number of service pensions current in Western Australia at 30 June and the amount paid in pensions in the period 1965-66 to 1969-70 are shown in the following table.

#### SERVICE PENSIONS (a)—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of pensions current at 30 June—					
Ex-servicemen ....	6,187	6,086	6,041	5,951	6,282
Dependants of—					
Living service pensioners ....	1,131	1,130	1,069	863	1,004
Deceased service pensioners ....	437	456	472	482	494
Miscellaneous (b) ....	2	2	4	2	3
Total ....	7,757	7,674	7,586	7,298	7,783
Amount paid in pensions during year ....	\$'000 3,571	\$'000 3,612	\$'000 3,777	\$'000 4,071	\$'000 4,491

(a) Including pensions in respect of ex-servicewomen.

(b) 'Act of grace' pensions.

#### Summary of Rates, 1967 to 1971

The following table shows the maximum weekly rates of war and service pensions payable at 1 January of the years 1967 to 1971. The rates applying to certain allowances and other forms of assistance are also shown.

#### WAR AND SERVICE PENSIONS—MAXIMUM WEEKLY RATES (\$)

Pension or allowance	At 1 January—				
	1967	1968	1969	1970	1971
War pensions—					
Special rate ....	30.50	30.50	33.50	36.00	38.00
Intermediate rate ....	21.25	21.25	24.25	26.50	28.00
General rate ....	12.00	12.00	12.00	12.00	12.00
Wife ....	4.05	4.05	4.05	4.05	4.05
Each child under 16 years of age (a) ....	1.38	1.38	1.38	1.38	1.38
War widows—					
Pension ....	13.00	13.00	14.00	15.00	15.50
Domestic allowance (b) ....	7.00	7.00	7.00	7.50	8.00
War orphans under 16 years of age (a)—					
Where one parent dead—					
First child ....	3.90	4.40	5.40	5.40	6.00
Second and each subsequent child ....	2.75	3.25	4.25	4.25	5.00
Where both parents dead—					
Each child ....	7.15	8.15	10.15	10.15	12.00

WAR AND SERVICE PENSIONS—MAXIMUM WEEKLY RATES—*continued*  
(£)

Pension or allowance	At 1 January—				
	1967	1968	1969	1970	1971
Service pensions—					
Unmarried person .....	13.00	13.00	14.00	15.00	15.50
Married person .....	11.75	11.75	12.50	13.25	13.75
Wife's pension .....	6.00	6.00	7.00	7.00	7.00
Payments in respect of dependent children (a)—					
Under 16 years of age (c)—					
First child .....	1.50	1.50	2.50	2.50	2.50
Each other child up to the fourth .....	1.75	1.75	2.75	3.75	3.75
Fifth and each subsequent child .....	1.50	1.50	2.50	3.50	3.50
Guardian's allowance—					
Where there is a child aged under 6 years or an invalid child requiring full-time care .....	4.00	4.00	4.00	6.00	6.00
Other cases .....	4.00	4.00	4.00	4.00	4.00
Supplementary assistance .....	2.00	2.00	2.00	2.00	2.00

(a) The amounts shown are payable in addition to child endowment. (b) Payable, in addition to pension, to a war widow if she has a dependent child or children under 16 years of age, or is 50 years of age or over, or is permanently unemployable, or has a child over 16 years of age undertaking education or training and not receiving an adequate living wage. (c) In the case of a 'student child', i.e. where the child is a full-time student and dependent on the pensioner, payment continues until the twenty-first birthday.

### NATIONAL HEALTH SERVICES

The *National Health Act* 1953-1970 provides for expenditure from the National Welfare Fund in respect of a free general practitioner service to eligible pensioners and their dependants; hospital, medical and pharmaceutical benefits to the community generally; and subsidised health insurance for certain persons. Other services financed from the Fund are the nutrition of children by the free supply of milk; the payment of handicapped children's benefits; the payment of allowances to sufferers from tuberculosis; reimbursement to State Governments of maintenance expenditure in relation to the diagnosis, treatment and control of tuberculosis; and a number of miscellaneous health services.

Payments from the National Welfare Fund in respect of health services in Western Australia during the five-year period ended 30 June 1969 are shown on page 270.

#### Hospital and Nursing Home Benefits

The payment of hospital and nursing home benefits is authorised under Part V of the National Health Act. Benefits are payable only in respect of treatment received in approved hospitals and approved nursing homes. For the purposes of the National Health Act, premises which provide medical treatment, care and accommodation for sick persons are approved either as hospitals or as nursing homes depending mainly on their clinical standards and the type of patients accommodated. The basic principle of the provision of Commonwealth hospital benefits is the encouragement of voluntary insurance by individuals against the costs involved.

Payment of \$2 per day is made by the Commonwealth for patients in approved hospitals who are contributors to a registered hospital benefit fund, the benefit being paid through the fund. Payment of eighty cents per day is made direct to the hospital for patients who are not contributors to a benefit organisation.

Under arrangements made with the States, pensioners who are enrolled in the Pensioner Medical Service and are treated in public wards of public hospitals are entitled (with a few exceptions) to free public ward treatment. For this the Commonwealth pays the hospitals a benefit of \$5 per day for each pensioner.

Commonwealth benefit of \$2 per day is paid for all qualified patients in approved nursing homes, whether the patient is insured or not. A supplementary benefit of \$3 per day is payable for those patients in approved nursing homes who need and receive intensive nursing home care.

The following table shows the amounts of benefit paid in Western Australia during each financial year from 1965-66 to 1969-70, and the number and membership of registered benefit organisations at 30 June in each year. It should be noted that the total



number of persons covered by hospital benefit schemes is considerably higher than the number of members shown, as many members contribute on account of dependants as well as for themselves.

#### HOSPITAL AND NURSING HOME BENEFITS—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Registered organisations—					
Number at 30 June .....	9	9	9	8	8
Membership at 30 June .....	279,192	288,232	292,803	317,049	330,298
Amount of benefit paid during year—					
Commonwealth benefit—	\$'000	\$'000	\$'000	\$'000	\$'000
Insured patients .....	1,577	1,685	1,620	1,722	1,756
Uninsured patients .....	152	148	153	150	160
Pensioner patients .....	1,443	1,787	2,316	2,375	2,246
Nursing home patients .....	1,897	2,033	2,222	2,812	4,319
Special account deficits <sup>(a)</sup> .....	217	229	287	343	600
Subsidised Medical Services Scheme <sup>(b)</sup> .....	....	....	....	....	72
Total .....	5,286	5,882	6,598	7,402	9,153
Fund benefit .....	4,386	5,638	7,033	8,505	9,400

(a) Reimbursements paid to benefit organisations; see letterpress immediately following table.

(b) See letterpress *Subsidised Health Insurance* on pages 244-5.

A 'special account' system was introduced on 1 January 1959 to provide an assured rate of hospital fund benefits to contributors who would otherwise have been excluded from fund benefits on account of organisations' rules covering pre-existing ailments, chronic illnesses and maximum fund benefit. The hospital fund benefit generally payable in such cases is \$3 per day and is paid either from special accounts guaranteed by the Commonwealth or from the ordinary accounts of the organisations. One condition of payment is that the treatment in respect of which the fund benefit was paid was given in an approved hospital, although fund benefit is paid in certain circumstances in respect of treatment given in approved nursing homes. If the payments from special accounts exceed the contributions credited to the account, the amount of the deficit is reimbursed by the Commonwealth.

Australian residents who receive hospital treatment in recognised hospitals in overseas countries, while temporarily absent from Australia, are eligible to receive the Commonwealth and fund benefits to which they are entitled.

#### Handicapped Children's Benefit

An amendment to the National Health Act in 1968 provided for the introduction of a handicapped children's benefit. Payment is made at the rate of \$1.50 per day on behalf of each handicapped child under sixteen years of age accommodated in a private non-profit institution, where the child receives medical or paramedical treatment and nursing care. The benefit became payable from 1 January 1969. Expenditure in Western Australia during the six months to 30 June 1969 was \$2,849, and in the financial year 1969-70 \$64,363.

#### Medical Benefits

A Medical Benefits Scheme commenced to operate from 1 July 1953, being authorised under the National Health (Medical Benefits) Regulations. These regulations were superseded by the National Health Act. The basic principle of the scheme is the encouragement of voluntary insurance by individuals against the costs of medical attention. The scheme provides for the payment of benefits by the Commonwealth, through medical insurance organisations registered for the purpose. The Commonwealth benefits supplement the benefits paid by the registered organisations in respect of a proportion of the medical expenses, such as fees for medical and surgical treatment, incurred by members of those organisations and their dependants. Benefits provided by the Commonwealth are paid either on a fee-for-service basis or in the form of a subsidy representing a proportion of the payments made to medical practitioners by registered organisations under contract arrangements.

The Act was amended in 1958 to enable registered organisations to extend their payment of medical benefits by means of the special account system referred to in the preceding section. Medical fund benefits previously disallowed in cases of pre-existing disabilities and protracted illnesses have been paid from 1 January 1959 under the provisions of this amendment.

Australian residents who, while temporarily absent from Australia, receive medical attention by registered medical practitioners are entitled, if insured, to the Commonwealth benefit and the medical fund benefit to which they would be entitled if the service were rendered in Australia.

The following table shows the number of medical services rendered in Western Australia to members of medical benefit organisations and their dependants during each financial year from 1965-66 to 1969-70. The number of organisations and their membership at 30 June in each year are also shown. It should be noted that the total number of persons covered by medical benefit schemes is considerably higher than the number of contributors, as many members subscribe for benefits on account of dependants as well as for themselves.

#### MEDICAL BENEFITS—WESTERN AUSTRALIA

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Registered organisations—					
Number at 30 June ....	8	8	8	8	8
Membership at 30 June ....	268,719	279,373	284,463	309,291	323,486
	'000	'000	'000	'000	'000
Number of medical services received during year (a)—					
General practitioner services ....	1,463	1,536	1,594	1,760	2,050
Other ....	770	868	1,001	1,022	1,029
Total ....	2,233	2,404	2,594	2,782	3,079
Amount of benefit paid during year—					
Commonwealth benefit—	\$'000	\$'000	\$'000	\$'000	\$'000
Ordinary ....	3,337	3,848	4,013	4,345	4,817
Special account deficits (b) ....	50	77	80	87	132
Subsidised Medical Services Scheme (c) ....	....	....	....	....	29
Total ....	3,387	3,925	4,093	4,432	4,978
Fund benefit ....	3,269	3,850	4,268	4,888	5,654

(a) From 1 July 1966 excludes services received by members of contract organisations, benefit organisations.

(c) See letterpress *Subsidised Health Insurance* below.

(b) Reimbursements paid to

A Pensioner Medical Service, which commenced on 21 February 1951, was introduced under the authority of the National Health (Medical Services to Pensioners) Regulations made under the provisions of the *National Health Service Act* 1948-1949. The service has been continued under the provisions of the *National Health Act* 1953-1970.

Under the scheme, qualified persons and their dependants, including student children aged up to twenty-one years, are provided with a free general practitioner service. Specialist services are not provided. A small fee may be charged by practitioners who attend qualified patients outside normal surgery or visiting hours. Practitioners in the scheme are remunerated on a fee-for-service basis by the Commonwealth Government.

#### Subsidised Health Insurance

In September 1969 the National Health Act was amended to provide free health insurance for persons receiving unemployment and sickness benefits; for migrants during their first two months in Australia; and for families with weekly income not exceeding \$39, an amount approximating the average of the Commonwealth minimum wage rates for adult males then current in the several States. In December 1969 the Commonwealth minimum weekly wage was increased by \$3.50, and in order to maintain the position applying prior to that time an amendment to the Act in 1970 raised the level of eligibility

to \$42.50 per week. This amendment also provided for graduated assistance towards the payment of health insurance contributions by families with weekly incomes not exceeding \$48.50.

From 1 July 1970, families with weekly income of \$42.50 or less became entitled to full medical benefits, and also to hospital benefits equal to the cost of public ward treatment, without any payment of contributions. Families with income of more than \$42.50 but not more than \$45.50 per week became eligible for the same benefits on payment of contributions at one-third of the usual rate, while those with income of more than \$45.50 but not more than \$48.50 per week became eligible for the benefits on payment of contributions at two-thirds of the usual rate. Families eligible for this assistance may secure insurance cover higher than that needed to meet public ward hospital charges by paying the extra contributions involved.

The amount of subsidy paid in Western Australia in the period to 30 June 1970 was \$29,332 in respect of medical benefits and \$71,656 in respect of hospital benefits.

### **Pharmaceutical Benefits**

The Pharmaceutical Benefits Scheme was inaugurated on 4 September 1950 when certain life-saving and disease-preventing drugs became available to the general community free of charge if duly prescribed by a medical practitioner registered in Australia. From 1 March 1960 a charge of fifty cents has been levied, except in the case of pensioners or their dependants, for each prescription dispensed and for each repeat supply. This amount represents the first fifty cents of the total cost, the remainder being met by the Commonwealth. With the introduction of this charge, the list of drugs available as pharmaceutical benefits was greatly expanded and now comprises a wide range of drugs, including the majority of those covered by the British Pharmacopoeia. Additions are recommended from time to time by the Pharmaceutical Benefits Advisory Committee, a committee of experts which advises the Government on the value of drugs most suitable for the treatment of various diseases.

A service providing pharmaceutical benefits free of charge to pensioners has been in operation since 2 July 1951. The full range of medicines supplied under the general scheme, and certain additional drugs, are available for this service. Persons qualifying for benefits are those who hold a Pensioner Medical Service entitlement card, and the dependants of such persons including student children aged up to twenty-one years.

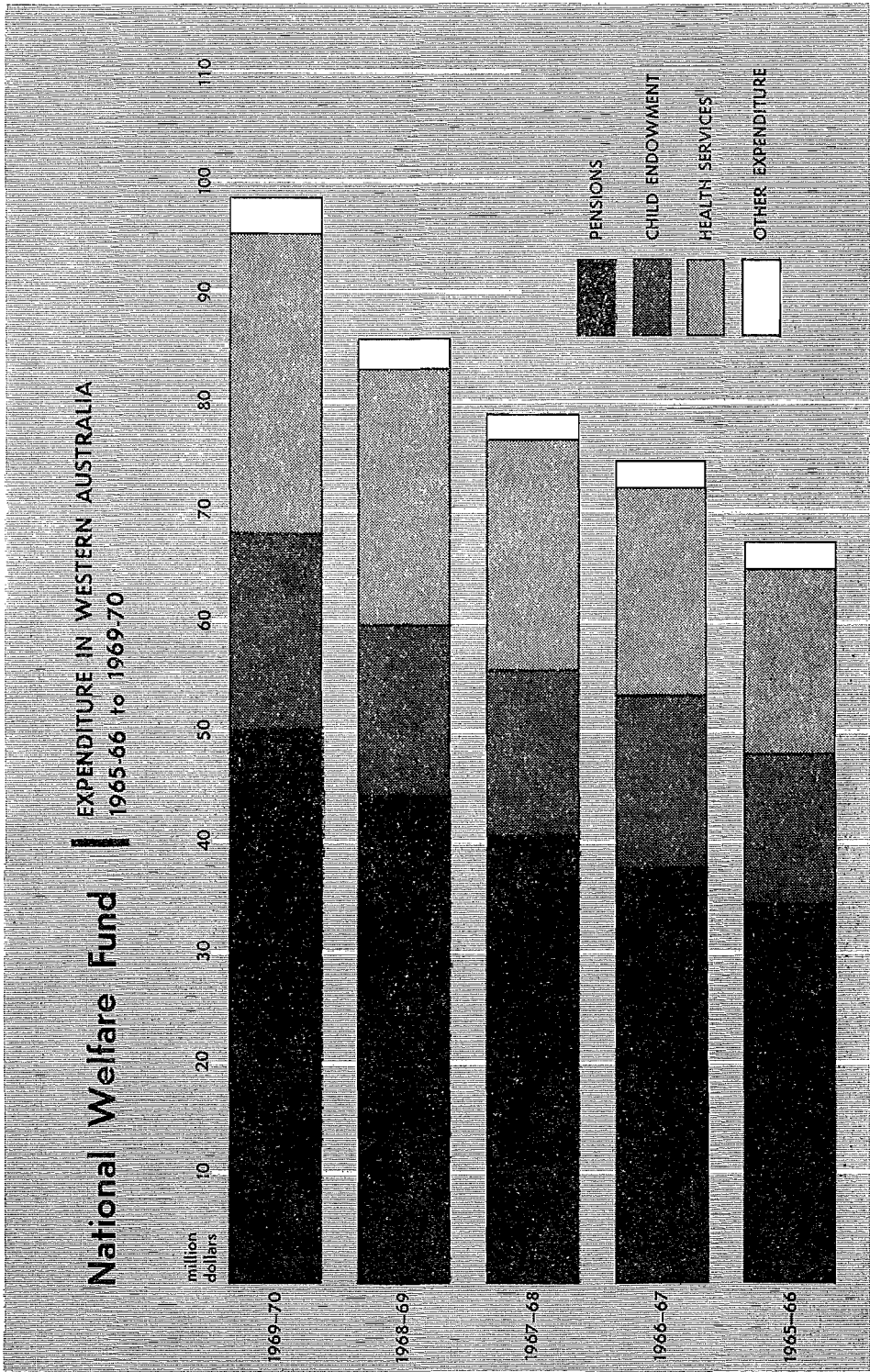
### **Free Milk for School Children**

The *States Grants (Milk for School Children) Act* 1950 provides for the distribution of free milk to school children throughout the Commonwealth, with the object of improving their diet. All children under the age of thirteen years attending school are eligible to receive this issue. The cost of the milk plus half the capital or incidental costs, including expenses incurred in administering the scheme, is reimbursed by the Commonwealth to the State, which arranges for the distribution.

### **Tuberculosis Campaign**

The *Tuberculosis Act* 1948 provides for a joint Commonwealth and State campaign against tuberculosis. The Commonwealth has an arrangement with the States, whereby each State is required to conduct a campaign against tuberculosis and to provide adequate facilities for that purpose. In consideration of this, the Commonwealth undertakes to reimburse the State for all approved capital expenditure in relation to tuberculosis and for net maintenance expenditure to the extent that it is in excess of net maintenance expenditure for the base year 1947-48. Thus, the States are required to carry out the actual physical or field work of the national campaign with the Commonwealth acting in an advisory, co-ordinating and financial capacity.

The Act provides also for the payment of allowances to sufferers and their dependants at such rates as the Director-General of Health, subject to the direction of the Minister, determines. Payments under the scheme commenced on 13 July 1950. The maximum



rate of allowance to a married sufferer with dependent wife is \$30.75 per week. Allowances for dependent children, including student children, are payable at the rate of \$2.50 per week for the first child and \$3.50 per week for each subsequent child. A sufferer without dependants is eligible to receive a maximum of \$18.75 per week or, if receiving hospital treatment free of charge, \$15 per week. There is a means test, which applies only to income and not to property. The allowance is reduced by the amount by which income from other sources exceeds \$17 per week in the case of a married sufferer and \$10 per week in the case of a person without a dependent wife.

### Miscellaneous Health Services

Other Commonwealth expenditure on health services includes the cost of district health laboratory services, the free supply of certain prophylactic materials and biological products (e.g. poliomyelitis vaccine), the supply and maintenance of hearing aids for children, subsidies to various voluntary organisations conducting home-nursing services that are assisted by the State Governments or local government authorities, the supply of artificially produced radio-active isotopes to private medical practitioners and hospitals for medical treatment purposes, and expenses in connection with the blood fractionation plant of the Commonwealth Serum Laboratories.

### Summary of Rates, 1967 to 1971

The following table shows the daily amounts of hospital and nursing home benefits and handicapped children's benefit payable during the five-year period ended 1 January 1971. The maximum weekly rates of tuberculosis allowances payable at 1 January in each of the years 1967 to 1971 are also shown.

NATIONAL HEALTH SERVICE PAYMENTS (a)  
(\$)

Benefit or allowance (a)	At 1 January—				
	1967	1968	1969	1970	1971
Hospital benefits (per day)—					
Insured patient (b) .....	2.00	2.00	2.00	2.00	2.00
Uninsured patient .....	0.80	0.80	0.80	0.80	0.80
Pensioner patient in public hospital (c) .....	5.00	5.00	5.00	5.00	5.00
Nursing home benefits (per day)—					
Ordinary .....	2.00	2.00	2.00	2.00	2.00
Supplementary (d) .....	.....	.....	3.00	3.00	3.00
Handicapped children's benefit (per day) (d) .....	.....	.....	1.50	1.50	1.50
Tuberculosis allowances—					
Maximum weekly rate—					
Sufferer with dependent wife .....	26.75	26.75	28.25	29.75	30.75
Sufferer without spouse but with dependent child or children .....	17.00	17.00	18.00	23.00	23.50
Sufferer without dependents—					
While undergoing approved domiciliary treatment .....	16.25	16.25	17.25	18.25	18.75
While undergoing free hospital treatment .....	13.00	13.00	14.00	15.00	15.50
Payments in respect of dependent children (e) (f)—					
First child under 16 years of age .....	1.50	1.50	2.50	2.50	2.50
Each other child under 16 years of age .....	1.50	1.50	2.50	3.50	3.50

(a) In addition to the benefits shown, payments from the National Welfare Fund in respect of National Health Services include medical benefits (see page 243), pharmaceutical benefits (see page 245), the cost of milk supplied free to school children (see page 245), miscellaneous health services (see above), and subsidised health insurance (see pages 244-5). (b) Member of an approved hospital insurance organisation. (c) Benefit payable on account of a pensioner enrolled in the Pensioner Medical Service who is a patient in a public hospital and for whom no fees are charged. (d) Introduced 1 January 1969. (e) In addition to child endowment. (f) In the case of a 'student child', i.e. a dependent child who is receiving full-time education at a school, college or university, payment continues until the twenty-first birthday.

### STATE RELIEF PAYMENTS

Under the provisions of the *Welfare and Assistance Act, 1961*, the State Government, through the Child Welfare Department, extends financial assistance to indigent persons. These relief payments which in many cases supplement the social benefits provided by the Commonwealth Government are made primarily to ensure that dependent children do not suffer hardship from the indigence of parents or guardians. Those assisted include deserted wives, unmarried mothers, divorced women, widows having the care of children, and families where the husband is unable to provide adequate support because of sickness, unemployment, age or imprisonment.

Other aid provided by the State for persons in need includes free travel for country people requiring medical treatment in the metropolitan area and the provision of school requisites for children of women receiving financial assistance. In certain circumstances, the burial of indigent persons is arranged at State expense.

Deserted wives and unmarried mothers applying to the Department for assistance are given advice concerning the legal redress available to them and it is usual for application to be made to a Summary Relief Court or a Children's Court for an order requiring the husband or the father to provide maintenance. Court orders are enforceable throughout Australia and in certain overseas countries.

State monetary assistance to widows, not in receipt of a Commonwealth widow's pension, is at the rate of \$13.75 per week, plus \$8.25 per week for the first dependent child, \$3.50 per week for the second child, \$5.50 per week for the third child, and \$3.50 for each other dependent child in her care. Unmarried mothers receive State monetary assistance at the same rate. To a widow receiving a Commonwealth pension the State pays \$2 per week if she has three or more dependent children. In this context, the term 'widow' includes deserted wives, divorced women, and women deprived of support by the insanity or imprisonment of husbands. If an age or invalid pensioner has dependent children, the State allows \$2 per week where there is one child, or \$2.50 per week where there is more than one dependent child.

Where Commonwealth unemployment or sickness benefits are payable, State financial assistance of \$11.25 for parents, plus \$1.50 for each dependent child up to a maximum of seven children, is paid for one week pending receipt of the Commonwealth benefit. In addition, Commonwealth child endowment is payable in respect of all dependent children. Details of Commonwealth Social Service benefits are given earlier in this Part in the section *Social Service Benefits*. The amount of State assistance granted is subject to a means test and in assessing income the earnings of the children of a family are taken into account.

#### FAMILIES RECEIVING FINANCIAL ASSISTANCE FROM CHILD WELFARE DEPARTMENT

Description	Number at 30 June—				
	1966	1967	1968	1969	1970
Widows .....	77	61	46	52	45
Unmarried mothers .....	46	48	55	132	194
Deserted wives .....	395	359	375	475	590
Husband pensioner .....	152	123	110	117	113
Husband sick or unemployed .....	187	130	102	77	....
Husband imprisoned .....	48	59	50	69	69
Divorced women .....	19	10	6	14	16
Foster-mothers .....	95	76	74	71	80
Special cases .....	3	6	2	3	6
Total .....	1,022	872	820	1,010	1,113

Under the *States Grants (Deserted Wives) Act* 1968, effective from 1 January 1968, the Commonwealth shares on a \$1 for \$1 basis with participating States in the cost of helping certain mothers with dependent children who are ineligible for a Class 'A' widow's pension. The main groups of women assisted are deserted wives during the first six months of desertion; wives during the first six months of the husband's imprisonment; deserted *de facto* wives; and *de facto* wives of prisoners. The grant by the Commonwealth to a State is equal to half the cost of the approved assistance paid by the State to each eligible person but may not exceed half the amount that would have been payable to such a person under the Social Services Act had she been eligible for a Class 'A' widow's pension.

## CHILD WELFARE

Under the provisions of the *Child Welfare Act, 1947-1970* the State Government, through the Child Welfare Department, is responsible for the care of State wards and children placed under supervision or released on probation by Children's Courts. For the purposes of the Act, a child is defined as 'any boy or girl under the age of eighteen years'. Institutions caring for children, as well as children brought to Western Australia under child migration schemes, are subject to supervision by the Department, as also are foster-mothers who have in their care children under six years of age and are required under the Act to be licensed for this purpose. Among other functions of the Department are the arranging of legal adoptions and the licensing of children employed in street trading and in public entertainment. A provision of the Child Welfare Act vests in the Department the right to decide which institution or what form of treatment is appropriate to the needs of a child committed by a Children's Court to the care of the Department for treatment, discipline and training.

Children's Courts are established at Perth and at other centres throughout the State and have jurisdiction in all cases where children under eighteen years of age are involved whether as offenders or as being neglected or destitute. The Courts also have jurisdiction to deal with adults committing certain specified offences against children. The public may be excluded from Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Adults charged with certain indictable offences against children may forgo the right to trial by jury and agree to be dealt with summarily by Children's Courts. This power to exercise summary jurisdiction is designed to eliminate as far as possible the necessity for children to appear in open courts as witnesses in cases dealing with sex offences. A Children's Court may commit such offenders for sentence by the Supreme Court.

Children guilty of minor offences may be cautioned, fined, bound over, placed on probation, or dismissed without a conviction being recorded. A Court may declare a child to be neglected or destitute and may order the child to be committed to the care of the Child Welfare Department or released on probation. Children found guilty of offences punishable by imprisonment may be committed to the care of the Department, released on security given by parents, or released on probation under the supervision of the Department. Those guilty of less serious or first offences are generally placed in the care of their parents or suitable guardians under appropriate supervision by officers of the Child Welfare Department.

**Expenditure.** The following table gives details of the annual expenditure of the Child Welfare Department during the five-year period ended 30 June 1970.

EXPENDITURE OF CHILD WELFARE DEPARTMENT  
(\$'000)

Nature of expenditure	1965-66	1966-67	1967-68	1968-69	1969-70
Administration .....	445	516	606	687	853
Departmental institutions .....	632	722	773	938	1,213
Maintenance of wards .....	397	447	494	522	751
Maintenance of migrant children .....					6
Adoption of children .....	351	393	350	451	41
Outdoor relief (a) .....					576
Unemployment relief .....	42	40	37	34	22
Parole classes .....	3	3	4	6	3
Burial of indigents .....	9	8	8	11	11
Total expenditure .....	1,879	2,130	2,272	2,649	3,476
Total revenue .....	193	198	186	241	228
Net expenditure .....	1,686	1,932	2,086	2,408	3,248

(a) Assistance to women with dependent children and to the infirm.

**Wards of the Child Welfare Department.** A child committed to the care of the Child Welfare Department or to the custody of the Director of Child Welfare becomes a ward of the Department. A ward may be placed in an institution, boarded out with a relative or other approved person, paroled or placed in suitable employment. The Director of Child Welfare has authority to place wards of working age in employment or apprenticeship. Where a ward is required to live at the place of employment, a service agreement covering wages and working conditions is made between the employer and the Department, which continues to watch the interests of the ward. The *Immigration (Guardianship of Children) Act 1946-1966* (Commonwealth) provides that the Minister for Immigration shall be the guardian of migrant children under the age of twenty-one years who are not in the care of a parent or other relative. In Western Australia this function is exercised, under delegation, by the Director of Child Welfare.

**Private Children.** In addition to wards, there are some private children under the supervision of the Department. These comprise children under six years of age who may be either in institutions or in the care of licensed foster-mothers.

**Maintenance of Children.** Payments by the Child Welfare Department to foster-parents having the care of State wards are at the weekly rate of \$7 for each child. Institutions are paid subsidies of \$7.50 per week for each ward in their care. The British Government pays \$2.50 per week for each British migrant child in institutions or boarded out and the State Government pays an additional amount of \$1.50 per week where the child is unaccompanied. A further grant of \$1 per week for each child maintained is paid to the institutions by the State Lotteries Commission. Where an institution refuses assistance from the Commission on religious or moral grounds the State Government may grant an equivalent allowance to the institution for each ward maintained. All institutions and foster-parents having the care of children receive Commonwealth child endowment payments. Under an 'emergency' foster placement scheme established by the Department during 1967, children are placed for short periods in approved private homes while awaiting permanent placement.

Parents or step-parents are required to contribute towards the maintenance of wards in institutions or boarded out.

**Employment of Children.** The *Child Welfare Act, 1947-1970* provides that children may not engage in street trading except under licence granted by the Department. The issue of licences is restricted to boys aged twelve years and over and it is an offence to employ an unlicensed child. Most of the licences issued are for the sale of newspapers.

The Act provides further that children under the age of sixteen years may not take part in any form of public entertainment for profit or reward unless under licence, except in the case of an occasional entertainment for the benefit of a school or charitable or patriotic object. Most of these licences are issued for concerts arranged by dancing teachers and other tutors.

**Adoption of Children.** Any person wishing to adopt a child must first obtain the written approval of the Director of Child Welfare. Legal adoptions may be arranged by the Department or privately by solicitors. In either case, the Director is required to investigate the suitability of applicants and an order for adoption must be obtained from a Judge of the Supreme Court.

**Institutions.** The State Government subsidises homes for children in Western Australia. Most of these institutions are conducted by religious organisations. All institutions having the care of wards (including migrant children) or private children under six years of age are subject to the supervision of the Department.



Departmental institutions provide short-term accommodation for children in need of care and children awaiting proceedings in Children's Courts; assessment facilities for children coming into the care of the Department; treatment centres in the nature of reformatories; and hostel accommodation. Children aged from three years to seventeen years are provided for. Wards under three years of age requiring short-term care are placed by arrangement at Ngal-a Mothercraft Home and Training Centre, South Perth.

The Child Welfare Reception Home at Mount Lawley has accommodation for forty-seven children who are either wards of the Department or are in need of care and protection. Children are generally accommodated for short periods, usually pending placement elsewhere.

Bridgewater Care and Assessment Centre at Applecross was opened in February 1969. It has accommodation for forty children in four cottages and offers short-term care for neglected or otherwise needy children who are not delinquent. Children may remain at Bridgewater for a full assessment and a decision concerning their future placement and management.

Hillston Farm School at Stoneville provides training for seventy-two boys aged from fourteen to seventeen years.

Longmore Remand and Assessment Centre at Bentley, established in 1965, provides short-term accommodation for thirty-six boys and twenty-four girls aged from thirteen to seventeen years. It serves as a detention centre for children apprehended for offences and awaiting Court proceedings, and for those remanded by Children's Courts for pre-sentence assessment and report. It also provides assessment facilities where newly-committed children can be assessed comprehensively and plans developed for future care and management.

'Nyandi' at Bentley, officially opened in February 1970, is an institution for the treatment of difficult girls. It has a maximum security unit which can accommodate twenty girls and a cottage for sixteen girls. The treatment programme is planned to provide a comprehensive approach to education and training. Varying degrees of control and supervision can be exercised, and the treatment programme is flexible so that it takes account of each girl's progress to maturity and greater social competence.

'Riverbank' at Caversham is a secure reformatory with accommodation for forty-three boy offenders. It provides a training programme incorporating school work, pre-trade experience in workshops, and recreational activities.

'Tudor Lodge' at Mount Lawley and 'Fourteen' at 14 Francis Street, Perth are hostels which provide accommodation for fourteen and ten boys, respectively. 'Stuart House' at Mount Lawley and 'Watson Lodge' at West Perth each has accommodation for ten girls.

The following table shows the number of admissions to institutions of the Child Welfare Department during the five-year period to 30 June 1970. It is important to note that the figures relate to *admissions* and not to *distinct persons*, i.e. a child has been counted once for each time he or she was admitted.

#### ADMISSIONS TO INSTITUTIONS OF CHILD WELFARE DEPARTMENT

Institution	1965-66	1966-67	1967-68	1968-69	1969-70
Child Welfare Reception Home	1,068	1,408	1,112	763	992
Bridgewater (a)	114	134	118	154	216
Hillston	856	794	770	1,103	1,389
Longmore	55	65	67	90	30
Nyandi (b)					123
Riverbank					
Total	2,093	2,401	2,067	2,250	2,949

(a) Opened February 1969.

(b) Opened February 1970.

## SUMMARY OF RELIEF AND WELFARE PAYMENTS

The following table shows the maximum weekly rates of allowances and benefits paid by the Child Welfare Department at 1 January of the years 1967 to 1971 in terms of the Welfare and Assistance Act and the Child Welfare Act.

STATE GOVERNMENT RELIEF AND WELFARE PAYMENTS (a)  
MAXIMUM WEEKLY RATES  
(\$)

Allowance or benefit	At 1 January—				
	1967	1968	1969	1970	1971
Woman not receiving widow's pension under Social Services Act (Commonwealth) (b) ....	10.25	11.25	12.50	13.25	13.75
Payments in respect of dependent children—					
First child ....	4.00	5.00	8.00	8.25	8.25
Second child ....	1.50	1.50	2.50	3.50	3.50
Third child ....	1.50	1.50	5.50	5.50	5.50
Fourth and each subsequent child ....	1.50	1.50	2.50	3.50	3.50
Widow pensioner with dependent children (c)....	3.00	3.00	3.00	2.00	2.00
Age or invalid pensioner—					
Payments in respect of dependent children—					
Where there is one child ....	2.00	2.00	2.00	2.00	2.00
Where there are two children ....	2.50	2.50	2.50	2.50	2.50
Where there are three or more children ....	3.50	3.50	3.50	2.50	2.50
Unemployment and sickness benefits (d)—					
First week (e)—					
Married person ....	8.25	8.25	8.25	8.25	8.25
Dependent spouse ....	3.00	3.00	3.00	3.00	3.00
Each dependent child up to and including the seventh ....	1.50	1.50	1.50	1.50	1.50
Second and each subsequent week—					
Where there are one or two children ....	3.00	3.00	3.00	....	....
Where there are three or four children ....	2.50	2.50	2.50	....	....
Where there are five or more children ....	2.00	2.00	2.00	....	....
Wards of the State—					
Foster children in families—					
First child ....	5.60	5.60	5.60	5.60	7.00
Second child ....	5.20	5.20	5.20	5.20	7.00
Third and each additional child ....	5.00	5.00	5.00	5.00	7.00
In institutions—					
Each child ....	5.10	5.10	5.10	6.50	7.50
Foster child (f) in institution or private home ....	4.50	4.50	4.50	5.50	5.50

(a) Payments made by Child Welfare Department in terms of the Welfare and Assistance Act and the Child Welfare Act. Such payments are, in general, intended to supplement benefits provided under the Social Services Act (Commonwealth) as shown on page 239.

(b) Includes divorcee; deserted wife; woman whose husband is in prison or in a mental institution; and unmarried mother receiving no direct assistance under the Social Services Act. The amounts shown apply also in the case of a widow awaiting payment of widow's pension, except that at 1 January 1968 the rate was \$10.25 and payment in respect of the first dependent child was \$4.

(c) Woman receiving widow's pension and having three or more dependent children in her care.

(d) Additional to benefits paid by the Commonwealth Government under the Social Services Act.

(e) Commonwealth benefit is not paid during the first week of unemployment or sickness.

(f) Foster child not being a ward of the State.

## *Chapter V—continued*

### **Part 6—Law, Order and Public Safety**

The law in force in Western Australia is contained in The Statutes of Western Australia, comprising legislation passed by the Western Australian Parliament and certain Imperial Acts which have been adopted, and in the Commonwealth Acts in so far as they apply to Western Australia. Under the Constitution of the Commonwealth of Australia, 'when a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid'.

Australian law adheres to the principle that judicial control must in general be exercised by ordinary courts. There is no integrated system of administrative tribunals. The ordinary courts exercise supervision over administrative tribunals either by way of statutory appeal or by the use of prerogative writs of mandamus, prohibition or *certiorari*, by which administrative tribunals can be enjoined to perform a duty or to abstain from excess of jurisdiction, or can have their decisions set aside. A basic feature of the Australian legal system is the 'rule of law': no act, official or unofficial, however *bona fide* and apparently reasonable, which infringes the liberty or rights of an individual is justifiable unless it is authorised by law, and for any such unlawful act, by whatever authority commanded, the official or other person is personally liable in an action in the ordinary courts.

#### **The Legal Profession**

The Barristers' Board, constituted under the *Legal Practitioners Act, 1893-1970*, comprises the Attorney-General as chairman; the Solicitor-General; all Queens' Counsel residing and practising in the State; persons who retire from an office of Judge of the Supreme Court of Western Australia and are resident in the State; and five practitioners of at least three years' standing and practice in the State, elected annually by the practitioners on the roll of the Supreme Court residing and practising in the State.

The Board has the power to regulate and control the examination and admission of articled clerks, and the examination of all candidates for admission as practitioners. The certificate of the Board is necessary before any person may be admitted to practice. An applicant for admission having qualifications acquired outside Western Australia must satisfy the Board that he possesses qualifications substantially equivalent to those required for the admission of persons who qualify in Western Australia.

#### **The Crown Law Department**

The Crown Law Department is administered, subject to the control of the Minister, by the Under Secretary for Law. The Department is responsible for the Supreme Court Central Office, Court Offices throughout the State, the Solicitor-General's Office, the Office of Titles, the Probate Office, the Public Trust Office, the Companies Registration Office, and the Probation and Parole Service. The Department, in addition to administering the Acts which come under the portfolio of the Minister, conducts Crown legal business and, when required, acts for and advises all other State Government Departments and instrumentalities.

### **LAW COURTS**

The principal courts operating in Western Australia are the High Court of Australia, the Supreme Court of Western Australia, The District Court of Western Australia, the Third Party Claims Tribunal, the Magistrates' and Coroners' Courts, the Summary Relief Court

and the Licensing Court of Western Australia. In Chapter X, Part 1, reference is made to the Commonwealth Industrial Court, the Commonwealth Conciliation and Arbitration Commission, the Western Australian Industrial Appeal Court, and The Western Australian Industrial Commission.

### High Court of Australia

The High Court of Australia is the Federal Supreme Court and its powers are defined in the Commonwealth Constitution and in the *Judiciary Act* 1903-1969. The High Court consists of a Chief Justice and six other Justices. Sittings are held in the capital city of each State as occasion may require. The High Court exercises both original and appellate jurisdiction, acting as a court of appeal for Australia.

An appeal may lie from a judgment of the High Court of Australia to the Judicial Committee of the Privy Council in London. However, the *Privy Council (Limitation of Appeals) Act* 1968 (Commonwealth), which came into operation on 1 September 1968, limits the matters which may be the subject of special leave of appeal from a decision of the High Court. The Act provides, in part, that leave of appeal 'may be asked only in a matter in which the decision of the High Court was a decision that (a) was given on appeal from a decision of the Supreme Court of a State given otherwise than in the exercise of federal jurisdiction; and (b) did not involve the application or interpretation' of the Australian Constitution, or of a Commonwealth law (including any ordinance, rule, regulation or by-law made under such a law).

### Supreme Court of Western Australia

The Supreme Court of Western Australia, as constituted under the *Supreme Court Act, 1935-1964*, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court in both civil and criminal matters is exercised by a single Judge, sitting alone or with a jury, unless it is provided that an action must be brought before a Full Court. Criminal cases are heard before a jury. Criminal sittings of the Supreme Court are held at Perth each month from February to December. Civil sittings and Full Court sittings are held at times fixed by the Court from year to year. There are regular sittings at Albany, Bunbury, Geraldton and Kalgoorlie, and at other country centres as required.

Any two or more Judges together comprise a Full Court except that when sitting as a court of criminal appeal there must be an uneven number of Judges. Appeals are heard against judgments of the Supreme Court, the District Court and the Third Party Claims Tribunal as well as against decisions of the magistrates in lower courts.

Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the *Judiciary Act* 1903-1969 (Commonwealth), and may also be made direct to the Privy Council.

### The District Court of Western Australia

The District Court of Western Australia is constituted under the provisions of the *District Court of Western Australia Act, 1969-1970* and consists of a Chairman of Judges and such other Judges as may from time to time be appointed. The Act, which came into operation on 1 April 1970, repeals the *Courts of Session Act, 1921*. The jurisdiction of the Court is exercised by a Judge sitting alone or with a jury. Criminal cases must be heard before a Judge and jury. Criminal sittings of the District Court are held at Perth each month from February to December, five times a year at Albany, Bunbury, Geraldton and Kalgoorlie, and at five other centres when required. Civil sittings are held concurrently with criminal sittings in Perth, and immediately following the criminal sittings at other centres except at Bunbury where special civil sittings are held four times a year.

Civil jurisdiction exists broadly up to a maximum of \$6,000, and criminal jurisdiction in respect of indictable offences except those for which the maximum penalty exceeds fourteen years' imprisonment.

Each District Court Judge is empowered to act as Chairman of the Third Party Claims Tribunal and in fact performs this function as a regular part of his duties.

Appeals from a District Court Judge lie, in the civil jurisdiction, to the Full Court of the Supreme Court and, in the criminal jurisdiction, to the Court of Criminal Appeal.

### **Third Party Claims Tribunal**

The Third Party Claims Tribunal is established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966*. The Tribunal consists of three members, including a Chairman, appointed by the Governor. The Chairman must be either a Judge or a legal practitioner of not less than eight years' standing and practice. Each District Court Judge is empowered to act as Chairman at hearings of the Tribunal. The Tribunal has exclusive jurisdiction to hear and determine all actions and proceedings brought against an owner or driver of a motor vehicle, or against The Motor Vehicle Insurance Trust, claiming damages in respect of the death of, or bodily injury to, any person caused by or arising out of the use of a motor vehicle. The Tribunal may, in respect of any claim, delegate powers to the magistrate of a Local Court. Any party dissatisfied with any decision, determination or judgment of the Tribunal in any action or proceedings under the Act may appeal to the Full Court of the Supreme Court.

### **Magistrates' and Coroners' Courts**

In addition to their usual functions, magistrates act as coroners and mining wardens where required. Two or more Justices of the Peace sitting together in petty sessions may deal with cases which could be decided by a magistrate sitting alone.

**POLICE COURTS.** Police Courts are held at centres of population throughout the State. Minor offences are dealt with summarily, but a person charged with an indictable offence may be committed to a higher court for trial or sentence if there is sufficient evidence to justify this course.

**CHILDREN'S COURTS.** Children's Courts are established under the provisions of the *Child Welfare Act, 1947-1970* to deal with offenders under the age of eighteen years and to hear certain specified cases of offences against children. Certain cases of offences concerning children may be remanded for hearing or committed for sentence before the Supreme Court. The public may be excluded from Children's Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Children's Courts operate in Perth, and at other centres as required. Further reference to Children's Courts appears in the section *Child Welfare* in Part 5 of this Chapter.

**CORONERS' COURTS.** Coroners' Courts may be held to inquire into the circumstances of sudden or unnatural deaths or the cause and origin of fires. A Coroner may charge a person with a major offence and commit him for trial at a higher court.

**SUMMARY RELIEF COURT.** The Summary Relief Court is established under the provisions of the *Married Persons and Children (Summary Relief) Act, 1965-1967* and is empowered to make orders providing for separation, payment of maintenance, legal custody of a child and access to a child.

**LOCAL COURTS.** Local Courts are held throughout the State to determine minor civil issues, largely the recovery of small debts. Jurisdiction is limited in most cases to claims not exceeding \$1,000.

### **Licensing Court of Western Australia**

The Licensing Court of Western Australia is established under the provisions of the *Liquor Act, 1970*, which came into operation on 1 July 1970. The Court comprises three members, including a chairman, appointed by the Governor. Except as otherwise provided by the Act, the Court may be constituted, and its jurisdiction may be exercised, by

any two members. The Court has exclusive jurisdiction to hear and determine all applications under the Liquor Act in respect of licences, provisional certificates and permits relating to the sale, supply and consumption of liquor. Appeal against a direction, determination or order of the Court lies to the Supreme Court, but only where the appeal involves a question of law.

## COURT PROCEEDINGS

### Higher Courts

The term *Higher Courts*, as used in the following table and in the tables on pages 257 and 260, refers to courts presided over by a Judge. The general jurisdiction of the higher courts includes appeals from the lower courts, cases of crime committed from lower courts, and civil cases. Under the *Bankruptcy Act* 1966-1970 (Commonwealth) the Supreme Court of Western Australia is invested with jurisdiction in bankruptcy, and under the *Matrimonial Causes Act* 1959-1966 (Commonwealth) with jurisdiction in divorce and related matters. Decrees of dissolution of marriage, nullity of marriage, and judicial separation may be granted by the Supreme Court.

### Civil Proceedings

Particulars of civil cases dealt with by the courts in the five years ended 31 December 1969 are shown in the following table.

#### CIVIL PROCEEDINGS

Particulars	1965	1966	1967	1968	1969
Number of proceedings—					
Bankruptcy (a)—					
Sequestration orders ....	236	197	195	222	224
Compositions and assignments without sequestration (b) ....	72	80	82	52	60
Divorce (c)—					
Petitions filed ....	738	791	890	1,003	1,062
Decrees granted (d) ....	606	640	727	812	873
Other civil proceedings—					
Higher courts—					
Writs issued ....	1,463	1,776	2,063	1,773	2,264
Judgments signed and entered ....	490	652	633	780	801
Local courts—					
Plaints entered ....	56,141	54,289	55,559	57,689	60,854
Verdicts for plaintiffs ....	27,910	23,885	25,769	24,430	36,734
Amounts awarded—					
Higher courts—					
Judgments signed and entered ....	2,228	2,274	5,770	3,845	3,358
Local courts—					
Verdicts for plaintiffs ....	2,627	2,446	2,822	2,812	3,263

(a) Figures relate to year ended 30 June; for further details see pages 306-7. (b) Includes deeds of arrangement.  
 (c) For further details see pages 166-7. (d) Comprises decrees for dissolution of marriage, nullity of marriage, and judicial separation.

### Third Party Claims Tribunal

The Third Party Claims Tribunal established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966* acquired jurisdiction in December 1967. In the period to 31 December 1969, 694 claims were filed with the Tribunal, and awards were made for damages amounting to \$2,082,000.

## CONVICTIONS IN COURTS

### Aborigines

The figures shown in the tables on pages 257-8 and 260 include particulars of Aborigines. An analysis of convictions of Aborigines during each year of the period from 1965 to 1969, according to class of offence, is given on page 259.

## Number of Convictions

It is important to bear in mind when considering the particulars shown in the tables on pages 257-60 that the figures relate to the *number of convictions* recorded and not to the *number of persons* convicted. Thus, where a person is convicted on more than one count at the same hearing, each conviction so recorded has been included in the statistics below.

### HIGHER COURTS—NUMBER OF CONVICTIONS (a)

Class of offence	1965	1966	1967	1968	1969
Offences against the person—					
Murder ....	3	1	2	1	5
Attempted murder ....	1	3	3	1	2
Manslaughter ....	8	7	4	5	10
Negligent driving causing death ....	8	11	4	4	5
Sex offences ....	38	36	32	24	16
Assault ....	17	13	25	62	30
Other ....	8	7	7	5	7
Total ....	83	78	77	102	75
Offences against property—					
Breaking, entering and stealing ....	258	271	329	622	674
Stealing, receiving ....	55	46	95	113	58
Other ....	16	19	14	29	50
Total ....	329	336	438	764	782
Forgery and offences against the currency ....	53	63	31	41	5
Offences against good order ....	4	3	8	1	1
Other offences ....	4	8	9	44	29
GRAND TOTAL ....	473	488	563	952	892

(a) Including convictions of Aborigines.

### MAGISTRATES' COURTS (a)—NUMBER OF CONVICTIONS (b)

Class of offence	1965	1966	1967	1968	1969
Offences against the person—					
Sex offences ....	110	148	172	183	186
Assault ....	674	717	801	871	1,067
Other ....	2	3	1	3	1
Total ....	786	868	974	1,057	1,254
Offences against property—					
Breaking, entering and stealing ....	789	1,406	1,546	1,755	1,835
Unlawfully on premises ....	370	444	503	723	933
Stealing, receiving ....	4,787	4,879	5,461	6,159	7,286
Unlawfully using motor vehicles ....	717	1,173	1,107	1,524	1,279
Wilful damage ....	491	527	562	743	868
Other ....	39	53	46	34	99
Total ....	7,193	8,482	9,225	10,938	12,300
Forgery and offences against the currency ....	11	7	8	70	68
Offences against good order—					
Drunkenness ....	8,395	9,033	10,722	11,146	11,970
Disorderliness ....	2,267	2,359	2,899	2,763	3,090
Vagrancy ....	502	569	625	638	710
Escaping legal custody ....	121	124	141	182	256
Offences against police ....	672	729	826	1,018	1,118
Other ....	104	83	87	143	226
Total ....	12,061	12,897	15,300	15,890	17,370
Other offences—					
Breach of—					
Traffic Act (c) ....	35,428	33,905	36,468	43,929	43,428
Native Welfare Act ....	539	445	246	615	1,038
Liquor laws ....	1,582	1,735	2,811	2,393	2,837
Health laws ....	251	195	214	184	166
Gaming ....	251	81	118	156	154
Industrial offences ....	147	86	151	119	83
Maintenance offences ....	696	634	842	677	886
Taxation offences ....	684	522	642	504	758
Other offences ....	5,913	4,899	5,799	5,360	5,614
Total ....	45,491	42,502	47,291	53,937	54,964
GRAND TOTAL ....	65,542	64,756	72,798	81,892	85,956

(a) Including Children's Courts. (b) Including convictions of Aborigines. (c) Excludes minor traffic offences not subject to court process; see letterpress on page 260.

### Convictions of Juveniles

The term *juvenile*, as used in relation to the statistics given in this Part, means a person under the age of eighteen years. Convictions of juvenile offenders are included in the figures shown in the tables on pages 257 and 259, and are given separately in the tables below and on page 260.

The following table shows the number of convictions of juvenile offenders in higher (Judges') courts and magistrates' courts (including Children's Courts) in Western Australia during the five years ended 31 December 1969.

OFFENCES BY JUVENILES—NUMBER OF CONVICTIONS (a) (b)

Class of offence	1965	1966	1967	1968	1969
<b>Offences against the person—</b>					
Sex offences ....	50	56	76	76	93
Assault ....	56	80	107	134	138
Other ....	....	1	1	2	1
<b>Total</b> ....	<b>106</b>	<b>137</b>	<b>184</b>	<b>212</b>	<b>232</b>
<b>Offences against property—</b>					
Breaking, entering and stealing ....	687	1,402	1,544	1,720	1,781
Unlawfully on premises ....	84	126	163	199	266
Stealing, receiving ....	1,823	2,038	2,318	2,428	3,135
Unlawfully using motor vehicles ....	396	840	761	970	718
Wilful damage ....	190	250	268	350	423
Other ....	26	34	38	15	61
<b>Total</b> ....	<b>3,206</b>	<b>4,690</b>	<b>5,092</b>	<b>5,682</b>	<b>6,384</b>
Forgery and offences against the currency ....	10	3	4	8	11
<b>Offences against good order—</b>					
Drunkenness ....	91	166	161	193	241
Disorderliness ....	176	256	300	265	348
Vagrancy ....	27	46	33	36	55
Escaping legal custody ....	10	19	10	19	32
Offences against police ....	79	112	143	176	169
Other ....	16	32	34	37	58
<b>Total</b> ....	<b>399</b>	<b>631</b>	<b>681</b>	<b>726</b>	<b>903</b>
<b>Other offences—</b>					
Breach of—					
Traffic Act ....	2,416	2,394	2,442	2,644	3,211
Liquor laws ....	222	243	488	481	628
Other offences ....	187	198	188	193	186
<b>Total</b> ....	<b>2,825</b>	<b>2,835</b>	<b>3,118</b>	<b>3,318</b>	<b>4,025</b>
<b>GRAND TOTAL</b> ....	<b>6,546</b>	<b>8,296</b>	<b>9,079</b>	<b>9,946</b>	<b>11,555</b>

(a) Comprises convictions in higher courts and magistrates' courts (including Children's Courts). (b) There is a break in continuity in this series; figures for 1965 exclude convictions of Aborigines, while those for 1966 and later include Aborigines.

The following table gives a classification, according to age of offender, of convictions of juveniles in courts in Western Australia during the year ended 31 December 1969.

CONVICTIONS OF JUVENILES, 1969 (a) (b)  
AGES OF OFFENDERS

Class of offence				Age last birthday (years)										Total		
				8	9	10	11	12	13	14	15	16	17		Not stated	
Against the person	....	....	....	....	....	1	17	22	33	73	78	8	232			
Against property	....	....	....	....	39	75	120	233	492	945	1,120	980	1,055	1,275	50	6,384
Forgery, etc.	....	....	....	....	....	....	2	....	2	....	7	....	....	....	....	11
Against good order	....	....	....	....	....	....	2	....	2	....	....	....	....	....	....	903
Other offences	....	....	....	....	....	Age not stated										4,025 (c)
Total	....	....	....	....	Not available											11,555

(a) Comprises convictions in higher courts and magistrates' courts (including Children's Courts). (b) Including convictions of Aborigines. (c) Comprises mainly convictions for traffic offences and breaches of liquor laws.



### Convictions of Aborigines

Convictions recorded against Aboriginal offenders are included in the figures contained in the tables on page 257 and, except for the year 1965, in those on page 258. The total number of convictions of Aborigines in each year from 1965 to 1969 are shown in the following table. The figures relate to convictions in higher courts and magistrates' courts (including Children's Courts).

OFFENCES BY ABORIGINES—NUMBER OF CONVICTIONS (a)

Class of offence	1965	1966	1967	1968	1969
<b>Offences against the person—</b>					
Murder .....	1	3	....	....	....
Manslaughter .....	1	22	....	....	2
Sex offences .....	16	274	18	* 32	18
Assault .....	241	274	299	*350	418
Other ....	4	1	....	....	2
<b>Total</b> ....	<b>263</b>	<b>300</b>	<b>317</b>	<b>*382</b>	<b>440</b>
<b>Offences against property—</b>					
Breaking, entering and stealing .....	107	230	280	401	443
Unlawfully on premises .....	64	77	104	208	275
Stealing, receiving .....	442	356	627	675	836
Unlawfully using motor vehicles .....	113	114	213	*366	387
Wilful damage .....	97	84	99	194	166
Other ....	2	23	3	* 13	22
<b>Total</b> ....	<b>825</b>	<b>884</b>	<b>1,326</b>	<b>1,857</b>	<b>2,129</b>
Forgery and offences against the currency ....	....	....	3	1	....
<b>Offences against good order—</b>					
Drunkenness .....	3,742	3,922	5,376	5,489	5,819
Disorderliness .....	938	1,005	1,561	1,417	1,458
Vagrancy .....	165	185	223	272	300
Escaping legal custody .....	39	35	65	72	93
Offences against police .....	164	183	240	239	233
Other ....	16	6	11	9	14
<b>Total</b> ....	<b>5,064</b>	<b>5,336</b>	<b>7,476</b>	<b>7,498</b>	<b>7,917</b>
<b>Other offences—</b>					
Breach of—					
Native Welfare Act .....	420	350	196	551	942
Traffic Act .....	537	521	712	738	1,085
Liquor laws .....	91	132	232	272	264
Health laws .....	....	2	....	....	....
Gaming .....	16	8	....	4	....
Maintenance offences .....	27	13	9	6	8
Other offences .....	115	117	147	101	128
<b>Total</b> ....	<b>1,206</b>	<b>1,143</b>	<b>1,296</b>	<b>1,672</b>	<b>2,427</b>
<b>GRAND TOTAL</b> ....	<b>7,358</b>	<b>7,663</b>	<b>10,418</b>	<b>*11,410</b>	<b>12,913</b>

(a) Comprises convictions in higher courts and magistrates' courts (including Children's Courts).

\* Revised.

It will be seen from the table that almost half the convictions were connected with the consumption of alcoholic liquor. From 1 July 1964, when the *Licensing Act Amendment Act (No. 4), 1963* came into operation, the former restrictions on the consumption of alcoholic liquor by Aborigines have been limited to areas of the State declared for the purpose. The restricted area which, from 1 July 1964, was the portion of Western Australia outside the South-West Land Division (see page 138), was reduced with effect from 1 November 1966 so as to comprise approximately that area of the State lying east of longitude 121°E.

### Summary of Convictions in Courts

The following table gives a summary of convictions in courts in Western Australia during each of the five years to 31 December 1969, together with an analysis according to class of offence of convictions recorded during the year ended 31 December, 1969

## COURT CONVICTIONS—SUMMARY

Particulars	Higher courts (a)			Magistrates' courts (a)			Convictions of juveniles (b) (c)		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
FIVE YEARS ENDED 31 DECEMBER 1969									
Year—									
1965 ....	437	36	473	58,723	6,819	65,542	6,110	436	6,546
1966 ....	427	61	488	57,695	7,061	64,756	7,666	630	8,296
1967 ....	547	16	563	64,256	8,542	72,798	8,331	748	9,079
1968 ....	901	51	952	72,839	9,053	81,892	9,129	817	9,946
1969 ....	867	25	892	76,404	9,552	85,956	10,365	1,190	11,555

## YEAR ENDED 31 DECEMBER 1969

Class of offence—									
Against the person ....	69	6	75	1,196	58	1,254	225	7	232
Against property ....	764	18	782	10,946	1,354	12,300	5,641	743	6,384
Forgery, etc. ....	4	1	5	44	24	68	2	9	11
Against good order ....	1	....	1	14,612	2,758	17,370	709	194	903
Other offences ....	29	....	29	49,606	5,358	54,964	3,788	237	4,025
Total ....	867	25	892	76,404	9,552	85,956	10,365	1,190	11,555

(a) Including convictions of Aborigines. (b) Included in figures shown under *Higher Courts* and *Magistrates' courts*.  
(c) There is a break in continuity in this series; figures for 1965 exclude convictions of Aborigines, while those for 1966 and later include Aborigines.

Regulations under the Traffic Act allow fines to be imposed without court action for minor traffic offences. Similar provisions apply under parking facilities legislation and municipal by-laws. These minor offences (which are, of course, excluded from the tables relating to court convictions) numbered 49,590 in 1965; 63,560 in 1966; 64,055 in 1967; 83,146 in 1968 and 116,820 in 1969.

## LIQUOR LICENCES

The following table shows the number of liquor licences of the several types in force in Western Australia. The figures shown for 30 June of the years 1966 to 1969 relate to licences granted under the provisions of the *Licensing Act, 1911-1969*. The Licensing Act was repealed, with effect from 1 July 1970, by the *Liquor Act, 1970*.

## LIQUOR LICENCES IN FORCE

Type of licence (a)	At 30 June—				Type of licence (b)	At 31 Dec. 1970
	1966	1967	1968	1969		
Publican's general ....	413	418	419	417	Hotel ....	462
Wayside house ....	42	41	40	39		
Australian wine, beer and spirits ....	1	1	1	1	Limited hotel ....	10
Limited hotel ....	3	3	5	7		
Australian wine ....	47	47	46	45	Australian wine ....	41
Australian wine, bottle ....	5	6	8	8		
Gallon ....	212	212	212	213	Store ....	225
Packet ....	9	9	9	9		
Railway refreshment room ....	1	....	....	....	Packet ....	15
Spirit merchant's ....	44	44	47	47	Railway refreshment room ....	....
Brewer's ....	4	4	4	4	Wholesale spirit merchant's ....	44
Club ....	237	240	251	255	Club's ....	4
Canteen ....	14	8	17	13	Club ....	260
Restaurant ....	22	23	25	32	Canteen ....	20
					Restaurant ....	40
					Tavern ....	....
					Winehouse ....	2
					Cabarct ....	12
					Theatre ....	1
Total ....	1,054	1,056	1,084	1,090	Total ....	1,136

(a) As described in the *Licensing Act, 1911-1969*.

(b) As described in the *Liquor Act, 1970*.

By a provision of the *Government Railways Act, 1904-1970*, The Western Australian Government Railways Commission is authorised to lease railways premises for the sale of refreshments, subject to the provisions of the *Liquor Act, 1970*. Where the licensee is not an officer employed by the Commission, the lease requires the sanction of the Licensing Court and is subject to such conditions as the Court may impose.

A licence applying to premises at Perth International Airport is issued in terms of the *Airports (Business Concessions) Act 1959* (Commonwealth).

## POLICE

The Western Australian Police Force comprises five main branches under the direction of the Commissioner of Police. The Commissioner is responsible to the Minister for Police and is assisted by a Deputy Commissioner.

For the administration of the Uniformed Branch, the State is divided into three metropolitan districts and seven country districts, each under the direction of an Inspector-in-Charge. There are three specialised branches, the Criminal Investigation Branch, the Plain Clothes Branch and the Traffic Branch, each of which is headed by an Inspector-in-Charge. The Women Police form the fifth branch.

The following table shows the numbers and classification of members of the Western Australian Police Force at 30 June of each year from 1965 to 1969. Two new police classifications were introduced in Western Australia on 1 January 1970. After completion of qualifying examinations, members of the Police Force with five years' service are promoted to the rank of first-class constable and those with ten years' service to the rank of senior constable.

POLICE FORCE—NUMBER AND CLASSIFICATION (a)

Date and classification	Branch and number of officers					
	Uniformed Branch	Criminal Investigation Branch	Plain Clothes Branch	Women Police	Traffic Branch	Total (a)
At 30 June—						
1965 .....	901	102	47	18	206	1,274
1966 .....	954	105	53	19	185	1,316
1967 .....	967	105	56	20	224	1,372
1968 .....	997	114	55	21	231	1,418
1969—						
Superintendent .....	8	1	1	....	1	11
Senior Inspector .....	9	1	....	1	1	12
Inspector .....	11	3	....	....	3	17
Sergeant .....	168	45	6	2	35	256
Constable .....	776	75	52	20	209	1,132
Recruit in training .....	58	....	....	....	....	58
Total .....	1,030	125	59	23	249	1,486

(a) In addition to the numbers shown there were a Commissioner of Police and a Deputy Commissioner of Police for each year; a Chief Inspector of Police for 1968 and earlier years; and an Assistant Commissioner of Police and a Chief Superintendent of Police for the year 1969.

The Uniformed Branch comprises the main body of the Police Force and is responsible for the routine maintenance of law and order throughout the State. Where required, officers of the Branch act as Clerks of Courts and perform special duties for other government authorities.

The Criminal Investigation Branch is centred in Perth, with several sub-branches in the metropolitan area and the principal country towns. The Branch is equipped with radio patrol cars and the usual facilities for work on fingerprints, photography and ballistics. Special staffs attached to the Criminal Investigation Branch are responsible for security and for police work in connection with gold stealing, pillaging and thefts from retail shops.

The Plain Clothes Branch is concerned mainly with the enforcement of the liquor laws and laws for the suppression of vice and gaming. Licensing of firearms is also a responsibility of the Branch.

The Women Police are employed mainly in police duties concerning women and children. Policewomen are stationed at Perth, Fremantle, Geraldton and Kalgoorlie.

The Traffic Branch is responsible for the regulation of traffic and the licensing of motor vehicles in the Metropolitan Traffic Area and in certain country areas. In other parts of the State these functions are performed by the local government authorities. Licences to drive motor vehicles are issued by police officers throughout the State. The Traffic Branch is responsible for the patrol of major highways to check commercial vehicles for overloading and for excessive speed. Officers of the Branch instruct school children in the principles of road safety and assist the National Safety Council to conduct a school where young persons are instructed in the proper use of motor cycles. Traffic Education Classes, although held mainly for the instruction of minor offenders against traffic laws, also admit members of the public who attend voluntarily.

Police and Citizens' Youth Clubs are established by the Police Department to provide recreational facilities for young people and to give them an appreciation of civic responsibilities.

### PRISONS

In Western Australia there are eleven prison establishments under the control of the Prisons Department, and six police gaols administered jointly by the Prisons Department and the Police Department. The principal institution is at Fremantle and there are regional prisons at Albany, Broome, Bunbury (Brunswick Junction Prison), Geraldton and Kalgoorlie. Barton's Mill, Pardelup Prison Farm, Karnet Rehabilitation Centre, and Wooroloo Training Centre (opened 5 March 1970) are minimum security institutions. A new prison for women, Bandyup Training Centre at Middle Swan, was opened in March 1970.

The following table shows the number of receivals for penal imprisonment in gaols in Western Australia during each of the five years to 30 June 1969. It is important to note that the figures relate to *receivals* and not to *distinct persons*, i.e. a prisoner has been counted once for each time he or she was received.

PENAL IMPRISONMENT—NUMBER OF RECEIVALS (a)

Institution	Year ended 30 June—									
	1965		1966		1967		1968		1969	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Prisons—										
Fremantle (b) ....	2,506	282	2,474	297	2,795	309	2,790	373	3,097	409
Albany (c) ....					186	41	297	70	231	62
Broome ....	145	9	113	14	161	19	100	15	144	18
Brunswick Junction (d) ....									19	
Geraldton (e) ....	185	31	189	41	286	52	483	119	421	66
Kalgoorlie (f) ....							295	45	513	102
Total ....	2,836	322	2,776	352	3,428	421	3,965	622	4,425	657
Police gaols ....	1,231	165	1,107	155	1,291	217	1,126	276	883	218
GRAND TOTAL ....	4,067	487	3,883	507	4,719	638	5,091	898	5,308	875

(a) Excludes imprisonment for debt. (b) Includes Barton's Mill, Karnet Rehabilitation Centre and Pardelup Prison Farm. (c) Opened 16 September 1966. (d) Opened 6 March 1969. (e) Administration transferred from Police Department to Prisons Department during the year ended 30 June 1965. (f) On 29 February 1968 the former police gaol was closed and simultaneously gazetted as a prison.

Fremantle gaol is divided into separate sections for prisoners on remand or awaiting trial, juvenile prisoners, and other sentenced prisoners. There are workshops where prisoners are employed in bootmaking, carpentry, printing, tailoring, tinsmithing and

welding, and in making cement and plaster products. Prisoners can also qualify as cooks and bakers. A school is conducted by teachers supplied by the Education Department, and tuition by correspondence is also available.

At Barton's Mill the main activity is the cutting of firewood for government establishments. This production is declining as timber resources in the area are becoming depleted, and trade training workshops are being developed. Farming is carried on at Pardelup Prison Farm and Karnet Rehabilitation Centre, and inmates receive instruction in animal husbandry, market gardening, and the operation and maintenance of farm machinery. Karnet Rehabilitation Centre is a dual-purpose institution with accommodation in two dormitory blocks, one of which houses convicted inebriates. The other block provides for selected inmates, mainly young first offenders, for whom accommodation has been increased by the erection of single cabins adjacent to the dormitory block.

Police gaols are established in Perth and at other centres. They are used for the detention of short-sentence prisoners and prisoners awaiting trial. In addition, provision is made for holding prisoners for short periods at police stations throughout the State.

The following table shows the number of prisoners, excluding trial and remand prisoners and debtors, in gaols in Western Australia at 30 June in each year from 1965 to 1969.

## PRISONERS IN GAOL

Institution	At 30 June—									
	1965		1966		1967		1968		1969	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
<b>Prisons—</b>										
Fremantle .....	405	33	459	27	521	46	461	37	523	55
Albany (a) .....	77	....	90	....	48	5	92	....	60	4
Barton's Mill .....	77	....	90	....	119	....	93	....	123	....
Broome .....	40	1	35	1	51	7	36	4	37	1
Brunswick Junction (b) .....	17	2	21	....	43	3	105	....	21	....
Geraldton (c) .....	....	....	....	....	....	....	48	2	99	....
Kalgoorlie (d) .....	....	....	....	....	....	....	....	....	40	5
Karnet Rehabilitation Centre —										
Inebriates' Section .....	38	....	37	....	57	....	53	....	51	....
Other .....	46	....	53	....	60	....	70	....	79	....
Pardelup Prison Farm .....	50	....	51	....	62	....	79	....	65	....
<b>Total .....</b>	<b>673</b>	<b>36</b>	<b>746</b>	<b>28</b>	<b>961</b>	<b>61</b>	<b>1,037</b>	<b>43</b>	<b>1,098</b>	<b>65</b>
<b>Police gaols .....</b>	<b>85</b>	<b>9</b>	<b>84</b>	<b>5</b>	<b>105</b>	<b>10</b>	<b>67</b>	<b>3</b>	<b>48</b>	<b>3</b>
<b>GRAND TOTAL .....</b>	<b>758</b>	<b>45</b>	<b>830</b>	<b>33</b>	<b>1,066</b>	<b>71</b>	<b>1,104</b>	<b>46</b>	<b>1,146</b>	<b>68</b>

(a) Opened 16 September 1966. (b) Opened 6 March 1969. (c) Administration transferred from Police Department to Prisons Department during year ended 30 June 1965. (d) On 29 February 1968 the former police gaol was closed and simultaneously gazetted as a prison.

## PROBATION AND PAROLE SERVICE

The Probation and Parole Service, a branch of the Crown Law Department, is constituted under the provisions of the *Offenders Probation and Parole Act, 1963–1970*.

Part II of the Act, dealing with the probation of offenders, came into operation on 1 January 1965. Probation officers appointed under the Act carry out supervision of offenders placed on probation by the courts. A court may require the Chief Probation Officer to report on an offender before sentence is imposed.

Part III, which relates to the parole of offenders, came into operation on 1 October 1964. It establishes a Parole Board of five members, comprising a Judge of the Supreme Court as chairman, the Comptroller-General of Prisons, and three members appointed by the Governor.

The Act requires that where a person is sentenced to imprisonment for twelve months or longer the court shall, unless special circumstances make it inappropriate, fix a minimum term during which the convicted person is not eligible to be released. The court

is given discretionary power to fix a minimum term where the sentence is for less than twelve months. Provision is made for the reduction of a minimum term, as a reward for good conduct or industry. Where no minimum term has been fixed, remission of up to 25 per cent of the sentence may be allowed for diligence and good conduct.

The Parole Board is empowered to release on parole a prisoner who has served a minimum term fixed by a court, or a prisoner being detained at the Governor's pleasure. The Governor may direct the release on parole of a prisoner sentenced to imprisonment for life, a prisoner undergoing a sentence of imprisonment for life commuted from a sentence of death, or an unconvicted person held in custody during the Governor's pleasure following acquittal because of unsoundness of mind.

Parole officers establish contact with prisoners before release on parole and supervise them during the parole period.

The following table gives particulars of the operations of the Probation and Parole Service from inception to 30 June 1969.

#### PROBATION AND PAROLE SERVICE

Particulars	Year ended 30 June—				
	1965 (a)	1966	1967	1968	1969
<b>PROBATION</b>					
Number of persons—					
Under supervision at beginning of period	120	120	417	656	751
Admitted to probation during period	120	347	403	370	572
Under supervision during period	120	467	820	1,026	1,323
Cancellation of probation		14	57	69	59
Completion of probation		36	107	206	241
Under supervision at end of period	120	417	656	751	1,023
<b>PAROLE (b)</b>					
Number of persons—					
Under supervision at beginning of period	69	124	207	209	288
Released on parole during period	72	226	232	280	348
Under supervision during period	141	350	439	489	636
Cancellation of parole	3	56	81	72	105
Completion of parole	14	87	149	129	195
Under supervision at end of period	124	207	209	288	336

(a) The figures shown for Probation relate to the six months ended 30 June 1965, and those for Parole to the nine months ended 30 June 1965. (b) Includes cases transferred from the former Indeterminate Sentences Board to the Parole Board on 1 October 1964.

#### PUBLIC SAFETY

##### National Safety Council

The formation of the National Safety Council of Western Australia arose out of discussions among office bearers and senior officials of the Royal Automobile Club of Western Australia concerning ways and means of establishing an organisation for the prevention of accidents. Following a conference between police and education authorities and officers of the Royal Automobile Club, and agreement with the State Government in respect of financial arrangements, the National Safety Council of Western Australia was established. The first meeting of the Council was held on 29 January 1946. In 1947 the Australian Road Safety Council was formed and the National Safety Council of Western Australia was nominated by the State Government to receive a proportion of the Commonwealth grant for the promotion of road safety. The Industrial Division of the Council was established in 1961, the Home Safety Division in 1963 and the Water

Safety Division in 1965. The Safety Instructional Centre at Mount Lawley has a safety training area of some eighteen acres which includes road systems, buildings and equipment for the training of adults and juveniles in each field of activity.

In November 1965 the National Safety Council of Western Australia was affiliated with the National Safety Council of Australia and became the Western Australian Division of that Council. The objects of the Council are to devise and encourage the adoption of safety measures of all kinds; to promote discussion of all matters relating to safety measures; to conduct an educational campaign among the people of Australia to stimulate the adoption and observance of safety measures; and to consider, initiate and support improvements in the laws of the Commonwealth of Australia, the States and local governing bodies, calculated to prevent accidents.

### Fire Protection

**Western Australian Fire Brigades Board.** The *Fire Brigades Act, 1942-1966* constitutes the Western Australian Fire Brigades Board of ten members. The Board comprises two members appointed by the Governor, one of whom is president of the Board; three members elected by the insurance companies carrying on business in the State; one member elected by the Council of the City of Perth; three members elected by other local government authorities; and one member elected by the registered volunteer fire brigades. The general duties of the Board are to take, superintend and enforce all necessary steps for the prevention and extinguishing of fires and the protection of life and property from fire, and the control of all fire brigade premises and of all fire brigades.

Fifteen permanent and two volunteer brigades operate in the metropolitan fire district centred on the City of Perth. Permanent brigade personnel serve with volunteer brigade personnel in five large country centres, and volunteer brigades provide town fire protection at some fifty other centres. During the year ended June 1970, brigades attended 4,302 calls in the metropolitan fire district and 1,164 calls in country fire districts. At 30 June 1970, the Board had 459 employees and there were 1,441 volunteer brigade officers and firemen.

**Bush Fires Board.** The Bush Fires Board, which is constituted under the *Bush Fires Act, 1954-1970*, consists of thirteen members appointed by the Governor on the recommendation of the Minister. It comprises the Under Secretary for Lands as chairman; six persons nominated by the Country Shire Councils' Association of W.A.; and one person nominated by each of the following: the Minister for Forests, the Minister for Agriculture, The Western Australian Government Railways Commission, the Fire and Accident Underwriters' Association of Western Australia, the Commissioner of Police, and the Associated Sawmillers and Timber Merchants. The principal functions of the Board are to administer the Bush Fires Act; to report to the Minister on methods of preventing or extinguishing bush fires; to recommend the prohibited burning times to be declared for the whole or any part of the State for any yearly period; to carry out such fire prevention measures as it considers necessary; to carry out research in connection with fire prevention and control; and to conduct publicity campaigns for the purpose of improving fire prevention measures.

At 30 June 1970, there were 948 bush fire brigades comprising 6,804 members, mainly volunteers. During the 1969-70 season, some 117,430 acres (mostly scrub and undeveloped land) were destroyed by fire. The principal cause was 'escape of burning-off operations', which accounted for 36 per cent of all fires. Other fires were caused mainly by burning rubbish, and sparks from vehicles, tractors and cigarettes. The burning of protective fire breaks is carried out by bush fire brigades throughout the agricultural areas.

## CHAPTER VI—FINANCE

### Part 1—Public Finance

In Western Australia there are three groups of authorities responsible for the collection and expenditure of public moneys. They are the State Government and associated semi-governmental authorities; the Commonwealth Government; and the local government authorities, comprising City Councils, Town Councils and Shire Councils.

#### COMMONWEALTH-STATE FINANCIAL RELATIONS

##### The Financial Agreement of 1927

Under the terms of the Financial Agreement, the Commonwealth Government took over from the States their public debts existing at 30 June 1927 and assumed responsibility for all future loan raisings by the Australian Governments. The Commonwealth also agreed to contribute annually for a period of fifty-eight years from 1 July 1927 an amount of \$15,169,824 towards the interest payable on the States' debts, Western Australia's share of this amount being \$946,864.

Sinking Funds established by the Financial Agreement between the Commonwealth and the States are designed to redeem the States' debts as follows: (a) debt existing at 30 June 1927, in a period of fifty-eight years thereafter; (b) debt incurred after 30 June 1927 (except for the purpose of financing revenue deficits), in a period of fifty-three years from the date of creation of the debt; (c) debt incurred to finance revenue deficits for the years 1929-30 to 1934-35, in a period of thirty-nine years from 30 June 1944; and (d) debt incurred to finance other revenue deficits, in a period of approximately seventeen years from the date of its creation.

These Sinking Funds are under the control of the National Debt Commission. Receipts of the Funds consist mainly of contributions from the Consolidated Revenue Funds of the Commonwealth and the States. The Commonwealth and the States make annual contributions of  $\frac{1}{2}$  per cent and  $\frac{1}{4}$  per cent respectively towards the redemption of debt existing at 30 June 1927, and further annual contributions of  $\frac{1}{4}$  per cent each towards the redemption of debt created since that date, with the exception of debt incurred to finance revenue deficits. In respect of debt incurred to finance revenue deficits during the years 1929-30 to 1934-35, the Commonwealth makes an annual contribution of  $\frac{1}{2}$  per cent and the States an annual contribution of  $\frac{3}{4}$  per cent. In respect of debt incurred to finance all other revenue deficits, contributions are at a rate of not less than 4 per cent per annum, and are the sole responsibility of the States concerned. In addition to the foregoing contributions, the States make an annual contribution of  $4\frac{1}{2}$  per cent on the face value of securities redeemed from their Sinking Funds, which in effect accumulates the original contributions and ensures that funds are approximately sufficient to repurchase or redeem the full amount of all debt in a period of fifty-three years.

Subject to the Financial Agreement, the contributions of the Commonwealth and the States in respect of the States' debts are applied by the Commission to the redemption of the public debts of the States, the redemption of loans raised by the Commonwealth for and on behalf of the States, and the repurchase of securities issued in respect thereof. Under the provisions of the Financial Agreement, repurchased or redeemed securities must be cancelled, and the debts of the States are reduced accordingly.

##### Debt Charges Assistance

The *States Grants (Debt Charges Assistance) Act* 1970 provides Commonwealth financial assistance to the States in connection with interest and sinking fund contributions payable in terms of the Financial Agreement. The assistance is in the form of an annual



grant to meet charges on \$200 million of the States' debts in each year from 1970-71 to 1974-75. The grants amount in total to \$172.6 million in respect of \$1,000 million of existing debt. Western Australia's share (\$1.11 million in 1970-71, \$2.21 million in 1971-72, \$3.32 million in 1972-73, \$4.42 million in 1973-74, and \$5.53 million in 1974-75) amounts to \$16.6 million in respect of \$96.1 million of debt. It was agreed at a Premiers' Conference in June 1970 that the \$1,000 million of States' debts to which the Act relates would be formally transferred from the States to the Commonwealth in June 1975.

### **The Australian Loan Council**

The Australian Loan Council was established by the Financial Agreement Act of 1928 to co-ordinate the public borrowings of the Commonwealth and the States. The Council has as its Chairman the Prime Minister of the Commonwealth, or a Minister nominated by him, and the other members are the Premiers of the States or, in the absence of a Premier, a Minister nominated by him. The Commonwealth and each State submits to the Council a programme of its desired loan raisings during each financial year, including the amount of any revenue deficit to be funded. The Commonwealth Government's borrowings for defence purposes are expressly excluded from its submissions to the Council. If the Council decides that the total amount of the loan programme for a year cannot be borrowed at reasonable rates and conditions, it decides the amount to be borrowed during the year, and may by unanimous decision allocate this amount between the Commonwealth and the States. Where the members fail to arrive at a unanimous decision the Commonwealth is entitled to a maximum of one-fifth of the total sum to be borrowed. Of the balance, each State is entitled to an amount in the proportion which its net loan expenditure during the preceding five years bears to the aggregate for all the States.

### **States Grants (Capital Assistance) Act**

The *States Grants (Capital Assistance) Act* 1970 grants financial assistance to the States in connection with expenditure of a capital nature and authorises the borrowing of moneys by the Commonwealth in order to provide this assistance. The Act enables the distribution of \$200 million among the States during 1970-71, Western Australia's share of this amount being \$18.7 million.

### **The Commonwealth Grants Commission**

Section 96 of the Commonwealth Constitution provides that the States may be granted financial assistance. In 1933 the Commonwealth Parliament passed the Commonwealth Grants Commission Act establishing a Commission of three members to inquire into and report on applications made by States for grants of financial aid.

In each year from 1934-35, in respect of which the Commission made its first recommendation, Western Australia received a special grant until it ceased to be a claimant State from and including the year 1968-69, in accordance with an agreement made between the Commonwealth and the State at a Premiers' Conference in June 1968. Following this agreement the Commonwealth was authorised by the *States Grants Act* 1968 to pay to Western Australia an amount of \$15.5 million in each of the years 1968-69 and 1969-70, in addition to the Financial Assistance Grant (see letterpress *Financial Assistance Grants* below), as a substitute for any special grant that might have been recommended by the Commission for those years.

### **Tax Reimbursements**

With the passage of enabling legislation in 1942, the Commonwealth Government became the sole taxing authority in the field of income tax. At the time of introduction of this 'uniform tax scheme', Western Australia was levying three separate taxes on incomes. These were income tax on individuals and on companies, a hospital fund contribution, and a tax on the profits of gold-mining companies. The *States Grants (Income Tax Reimbursement) Act* 1942 provided for the payment to each State of a fixed annual amount by way of financial assistance to compensate for loss of revenue from income tax. The Act was repealed in 1946 by the *States Grants (Tax Reimbursement)*

Act which prescribed a fixed grant for each of the financial years 1946-47 and 1947-48 and, for subsequent years, an amount to be varied in accordance with changes in population and in average wages per person employed.

### Special and Additional Financial Assistance

With the increasing financial needs of the States it became necessary for the Commonwealth Government to make grants in excess of those prescribed by the *States Grants (Tax Reimbursement) Act* 1946-1948. Financial aid was extended by a *States Grants (Special Financial Assistance) Act* passed in each year from 1951 to 1958 and in 1969 and 1970, and by the *States Grants (Additional Assistance) Acts* of 1958, 1962, 1963 and (No. 2) 1963.

### Financial Assistance Grants

The *States Grants Act* 1959 repealed the *States Grants (Tax Reimbursement) Act* and provided for a new system of annual payments which are described as 'Financial Assistance Grants'. The Act incorporated an arrangement, unanimously agreed to by the States at a Premiers' Conference in June 1959, which was designed to eliminate the need for supplementary grants in the form of Special Financial Assistance and to reduce to a marginal level the special grants provided for under the *Commonwealth Grants Commission Act* 1933-1957.

The amount of the Financial Assistance Grant to Western Australia for 1959-60, the first year of operation of the scheme, was prescribed by the Act as \$50,924,000. The grant was essentially a *per capita* payment, which varied as between States. For each year subsequent to 1959-60, this *per capita* payment was increased, if average wages paid in Australia as a whole increased in the preceding year, by a percentage equal to 1.1 times the percentage rise in average wages. By this means, not only were the effects on State finances of population changes and wage increases taken into account but a 'betterment factor' was also introduced to enable a State Government to extend the range or improve the standard of its services.

The *States Grants Act* 1965-1968 repealed the Act of 1959 and gave effect to an agreement, reached at a Premiers' Conference held at Canberra in June 1965, on a revised arrangement to operate for a period of five years from 1 July 1965. Under this arrangement the amount of the annual grant continued to be related to changes in a State's population and in the level of wages paid in Australia as a whole. The grant payable in respect of any year was determined by adjusting the amount of the previous year's grant for these two factors and increasing the result by 1.2 per cent.

The *States Grants Act* 1970 repeals the *States Grants Act* 1965-1968 and authorises the Commonwealth to grant financial assistance to the States during 1970-71 and later years. As provided in the earlier legislation, the annual grants are subject to variation in accordance with changes in a State's population and in the level of wages paid in Australia as a whole. The Act requires that, in calculating grants for the year 1970-71, the 'betterment factor' shall remain unchanged at 1.2 per cent, but shall be increased to 1.8 per cent for 1971-72 and later years. In respect of grants for the year 1970-71, an additional amount of \$40 million is made available for distribution among the States.

The Act also provides for additional grants to be paid to specified States. In the case of Western Australia, the amounts are \$12.5 million for 1970-71, \$9.50 million for 1971-72, \$6.50 million for 1972-73, \$3.50 million for 1973-74, and \$0.50 million for 1974-75.

### Other Financial Assistance

As well as providing general financial assistance to the States by means of grants, the Commonwealth Government allocates to them funds for specific purposes, as shown in the next table which gives details of payments made to Western Australia from the Consolidated Revenue Fund. Social service and national health benefits and homes savings grants are paid from the National Welfare Fund. In addition, financial assistance for housing and war service land settlement is provided from Loan Fund.

## FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA

## Consolidated Revenue Fund

COMMONWEALTH CONSOLIDATED REVENUE FUND  
FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA (a)  
(\$'000)

Nature of payment	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Payments of a revenue nature—</b>					
Financial Agreement—					
Interest on State debts ....	947	947	947	947	947
Sinking Fund contribution ....	1,616	1,726	1,844	1,986	2,106
<b>General revenue grants—</b>					
Financial Assistance Grants ....	70,498	78,474	86,396	96,152	(b)123,796
Special Grants (c) ....	17,120	24,038	19,406	15,518	582
Special Financial Assistance Grants ....	....	....	....	....	1,296
<b>Education—</b>					
University ....	2,060	2,152	2,306	2,652	2,833
Colleges of advanced education ....	....	....	363	776	912
Research grants ....	....	142	155	257	276
<b>Development of resources and assistance to industry—</b>					
Agricultural extension services ....	102	104	213	294	375
<b>Health—</b>					
Blood transfusion services ....	42	44	92	80	75
<b>Other—</b>					
Road safety practices ....	17	16	19	19	19
Coal mining industry long service leave ....	32	34	34	40	45
Housekeeper services ....	1	1	2	2	2
Natural disaster payments ....	....	....	....	....	50
<b>Total ....</b>	<b>92,436</b>	<b>107,679</b>	<b>111,778</b>	<b>118,724</b>	<b>133,313</b>
<b>Payments of a capital nature—</b>					
Transport and communication—					
Commonwealth Aid Roads Acts ....	23,007	24,739	26,676	28,597	30,537
Beef cattle roads grants ....	1,500	1,500	1,500	1,400	1,451
Eyre Highway—Contribution to maintenance ....	25	25	25	25	25
Railway standardisation agreement (d) ....	10,265	17,828	17,996	19,458	8,362
Replacement of Derby jetty (e) ....	300	....	....	....	....
<b>Education—</b>					
University ....	940	901	1,160	567	734
Teachers' colleges ....	....	....	....	1,817	582
Pre-school teachers' colleges ....	....	....	....	....	14
Colleges of advanced education ....	....	232	457	1,304	874
Technical training ....	714	269	551	1,323	437
Science laboratories in schools ....	708	502	899	912	921
School libraries ....	....	....	....	....	168
<b>Development of resources and assistance to industry—</b>					
Water supplies (f) ....	....	1,250	1,250	1,500	2,050
Softwood forestry (f) ....	....	....	....	450	500
Investigation and measurement of water resources ....	136	211	235	260	273
Ord River irrigation agreement ....	1,468	1,112	....	100	5,100
Northern harbours (g) ....	1,100	1,154	....	....	....
Encouragement of meat production ....	....	....	8	....	....
<b>Health—</b>					
Mental institutions—Contribution to capital expenditure ....	447	338	260	148	375
Tuberculosis Act—Reimbursement of capital expenditure ....	11	2	....	10	....
<b>Other—</b>					
Exmouth township development ....	380	750	1,952	417	....
Migrant centre ....	....	....	....	357	411
Aboriginal advancement ....	....	....	....	....	825
<b>Total ....</b>	<b>41,001</b>	<b>50,813</b>	<b>52,969</b>	<b>58,645</b>	<b>53,639</b>
<b>GRAND TOTAL ....</b>	<b>133,437</b>	<b>158,492</b>	<b>164,746</b>	<b>177,369</b>	<b>186,952</b>

(a) Excludes subsidy and bounty payments. (b) Includes \$15,500,000 in place of a Special Grant. (c) See letterpress The Commonwealth Grants Commission on page 267. (d) Includes repayable advances: 1964-65, \$6,038,000; 1965-66, \$10,487,000; 1966-67, \$10,586,000; 1967-68, \$11,446,000; 1968-69, \$4,919,000. (e) Includes repayable advance of \$150,000. (f) Repayable advances. (g) Includes repayable advances: 1964-65, \$550,000; 1965-66, \$577,000.

## National Welfare Fund

The National Welfare Fund was established in 1943 by the National Welfare Fund Act passed by the Commonwealth Parliament in that year. The purpose of the fund is to provide for the payment of social service and health benefits. Payments from the

fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

#### NATIONAL WELFARE FUND—PAYMENTS IN WESTERN AUSTRALIA (a)—(\$'000)

Pension or benefit	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Social services—</b>					
Age and invalid pensions ....	29,413	30,760	33,794	36,418	39,404
Rehabilitation service ....	174	187	196	193	208
Funeral benefits ....	59	66	88	90	96
Widows' pensions ....	3,463	3,602	4,011	4,346	4,786
Unemployment, sickness and special benefits—					
Unemployment ....	842	368	374	304	309
Sickness ....	512	457	445	420	389
Special ....	46	47	36	33	97
Maternity allowances ....	534	536	559	605	648
Child endowment ....	13,406	13,624	15,498	14,845	15,540
Sheltered employment allowances (b) ....	....	....	....	5	37
Assistance for deserted wives (c) ....	....	....	....	35	215
<b>National health services—</b>					
Hospital and nursing home benefits (d) ....	4,987	5,286	5,881	6,598	7,401
Handicapped children's benefits (e) ....	....	....	....	....	3
Medical benefits (f) ....	3,056	3,387	3,925	4,093	4,432
Medical benefits for pensioners ....	660	958	1,020	1,172	1,168
Pharmaceutical benefits ....	3,824	4,205	4,730	4,974	6,195
Pharmaceutical benefits for pensioners ....	1,470	1,665	1,989	2,143	2,507
Milk for school children ....	637	619	698	850	797
Tuberculosis campaign—					
Allowances ....	80	61	53	55	44
Maintenance (g) ....	742	697	547	807	602
Miscellaneous (h) ....	30	28	156	168	191
Homes savings grants ....	699	762	666	740	760
<b>TOTAL</b> ....	<b>64,635</b>	<b>67,316</b>	<b>74,666</b>	<b>78,894</b>	<b>85,828</b>

(a) For conditions applying to payment of social service and health benefits, see Chapter V, Part 5. (b) Payable from 6 July 1967. (c) As provided by the *States Grants (Deserted Wives) Act* 1968, effective from 1 January 1968. (d) For details, see table *Hospital and Nursing Home Benefits—Western Australia* on page 243. (e) Payable from 1 January 1969. (f) For details, see table *Medical Benefits—Western Australia* on page 244. (g) Figures exclude payments and reimbursements from Commonwealth Consolidated Revenue Fund in respect of capital expenditure by the State Government; see preceding table. (h) See letterpress *Miscellaneous Health Services* on page 247.

### COMMONWEALTH AND STATE TAXATION

#### Commonwealth Taxation

#### COMMONWEALTH TAXATION—NET COLLECTIONS IN WESTERN AUSTRALIA—(\$'000)

Tax, duty, charge or levy	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Paid to Consolidated Revenue Fund—</b>					
Income tax (a) ....	119,210	130,589	165,396	193,765	226,532
Customs duties (a) ....	10,074	13,359	11,839	16,604	19,580
Excise duties ....	43,083	53,077	57,673	62,349	68,642
Sales tax (a) ....	20,058	23,067	25,878	28,944	34,779
Pay-roll tax ....	8,746	10,192	11,574	13,204	15,162
Estate duty ....	1,784	1,652	2,267	2,551	2,482
Gift duty ....	479	611	962	602	812
Other ....	30	42	36	38	67
<b>Total (a)</b> ....	<b>203,463</b>	<b>232,589</b>	<b>275,626</b>	<b>318,058</b>	<b>368,058</b>
<b>Other (b)—</b>					
Wool tax ....	1,756	2,283	2,370	2,445	3,017
Export charges on primary products ....	46	41	42	29	62
Stevedoring industry charge ....	939	961	1,025	1,609	1,487
Dairy produce levy (c) ....	30	3	....	....	....
Butterfat levy (d) ....	....	65	61	59	61
Canning-fruit charge ....	....	....	1	1	(e) ....
Cattle slaughter levy (f) ....	101	(e) ....	....	....	....
Livestock slaughter levy (g)—					
Cattle ....	32	93	85	93	105
Sheep and lambs ....	9	28	62	81	101
Honey levy ....	9	9	8	7	8
Tobacco charge ....	....	....	....	....	3
<b>Total</b> ....	<b>2,921</b>	<b>3,483</b>	<b>3,653</b>	<b>4,323</b>	<b>4,845</b>
<b>GRAND TOTAL (a)</b> ....	<b>206,384</b>	<b>236,072</b>	<b>279,279</b>	<b>322,381</b>	<b>372,903</b>

(a) The amounts shown have been adjusted by offsetting remissions under special circumstances of income tax, customs duties and sales tax. (b) Transferred to trust funds or relevant authorities and used for purposes of the industry concerned. (c) Replaced by Butterfat levy from 1 July 1965. (d) Operative from 1 July 1965; see note (c). (e) Less than \$500. (f) Discontinued 1 August 1964; see note (g). (g) Operative from 1 August 1964; see note (f).

It is important to note that, although the figures shown in the preceding table represent the amounts of taxes actually collected in Western Australia, they do not necessarily indicate the amounts contributed by the people of the State, as moneys may be collected in one State in respect of goods consumed or assessments made in other States. Further, administrative arrangements for the collection of certain taxes are such that a large proportion of the revenue (or, as in the case of Wheat Tax, the whole of the revenue) is brought to account in a State other than Western Australia.

Details of the purposes and rates applicable to the main forms of Commonwealth taxation are given in the *Official Year Book of the Commonwealth of Australia*: No. 56, 1970 on pages 283-6 (customs duties), 325 (excise duties), 586-94 (income tax), and 557-61 (other taxation).

**Income Tax.** Income tax is by far the most important source of Commonwealth revenue from taxation. The following table relates to assessments of tax on the incomes of individuals (*i.e.* excluding companies) resident in Western Australia. The term 'actual income', as used in the table, refers to gross income (including 'exempt income') less expenditure incurred in gaining that income. (The principal items of exempt income are social service benefits, war and service pensions, and income from gold mining and some other mining operations.) 'Taxable income' is equal to actual income less exempt income and allowable deductions.

**INCOME TAX ASSESSMENTS—RESIDENT INDIVIDUALS: WESTERN AUSTRALIA (a)**  
**INCOME YEAR 1968-69 (ASSESSMENT YEAR 1969-70)**

Grade of actual income (b)	Number of taxpayers			Actual income	Taxable income			Net tax assessed	
	Males	Females	Persons		Salary and wages	Other income	Total	Total	Average per taxpayer
\$	\$			\$'000	\$'000	\$'000	\$'000	\$'000	\$
417- 599	3,852	7,845	11,697	5,994	5,021	756	5,777	121	10
600- 799	4,735	9,778	14,513	10,150	8,287	1,217	9,504	305	21
800- 999	5,257	10,540	15,797	14,201	11,357	1,702	13,059	578	37
1,000-1,199	5,570	10,991	16,561	18,212	14,296	2,180	16,475	920	56
1,200-1,399	5,749	11,354	17,103	22,233	17,357	2,705	20,062	1,338	78
1,400-1,599	6,402	10,933	17,335	26,033	19,752	3,575	23,327	1,785	103
1,600-1,799	6,967	11,546	18,513	31,435	23,857	4,245	28,102	2,415	130
1,800-1,999	7,809	10,796	18,605	35,319	26,582	4,776	31,358	2,974	160
2,000-2,199	9,168	8,235	17,403	36,547	26,033	5,795	31,828	3,259	187
2,200-2,399	11,227	6,264	17,491	40,222	28,140	6,169	34,309	3,761	215
2,400-2,599	12,434	5,119	17,553	43,873	29,961	6,842	36,803	4,266	243
2,600-2,799	13,818	3,733	17,551	47,376	31,397	7,165	38,562	4,658	265
2,800-2,999	14,703	2,852	17,555	50,895	33,562	7,303	40,865	5,178	295
3,000-3,199	15,351	2,268	17,619	54,632	35,984	7,616	43,600	5,799	329
3,200-3,399	15,223	1,953	17,176	56,647	36,513	7,878	44,391	6,137	357
3,400-3,599	14,730	1,623	16,353	57,257	37,301	8,024	45,324	6,603	404
3,600-3,799	13,998	1,365	15,363	56,787	36,625	7,974	44,600	6,715	437
3,800-3,999	12,472	1,234	13,706	53,424	33,453	8,209	41,662	6,502	474
4,000-4,999	41,190	4,285	45,475	202,184	121,606	36,571	158,177	27,312	601
5,000-5,999	20,158	2,571	22,729	124,083	65,916	31,153	97,069	19,287	849
6,000-6,999	10,537	1,618	12,155	78,423	36,599	25,344	61,943	13,719	1,129
7,000-7,999	5,863	1,184	7,047	52,540	20,174	21,832	42,006	10,154	1,441
8,000-8,999	3,440	822	4,262	36,074	11,588	17,622	29,210	7,575	1,777
9,000-9,999	2,245	594	2,839	26,874	7,022	15,115	22,137	6,171	2,174
10,000-11,999	2,581	755	3,336	36,383	7,868	22,474	30,342	9,231	2,767
12,000-13,999	1,503	375	1,878	24,213	4,548	15,963	20,511	6,910	3,679
14,000-15,999	899	212	1,111	16,556	2,876	11,358	14,235	5,224	4,702
16,000-17,999	556	135	691	11,699	2,024	8,137	10,161	4,003	5,793
18,000-19,999	371	66	437	8,263	1,334	5,840	7,174	2,968	6,792
20,000-29,999	586	129	715	16,914	1,770	13,066	14,836	6,906	9,659
30,000-39,999	119	30	149	5,064	456	4,094	4,550	2,409	16,166
40,000-49,999	35	8	43	1,902	255	1,410	1,665	940	21,867
50,000-59,999	18	5	23	1,254	138	993	1,131	662	28,796
60,000-79,999	20	3	23	1,561	203	1,145	1,349	794	34,511
80,000-99,999	5	1	6	523	45	372	418	258	42,924
100,000 and over	5	....	5	867	....	686	686	446	89,118
Total	269,596	131,222	400,818	1,306,615	739,899	327,305	1,067,204	188,283	470

(a) Including Central Office assessments of Western Australian residents. (b) An individual was not liable to pay tax on income derived in any year from and including 1963-64 if the taxable income was \$416 or less.

Additional tables, including particulars relating to companies, appear in *Statistics of Western Australia—Finance*. The bulletin *Commonwealth Taxation Assessments*, published annually by the Commonwealth Statistician, Canberra, contains comprehensive statistical tables and details of rates of tax, allowable deductions and other conditions applying to tax on incomes of individuals and of companies.

### State Taxation

The net amounts collected in Western Australia in the form of State taxation in each year from 1964-65 to 1968-69 are shown in the table on page 277. Information concerning rates of tax and the relevant legislation is given below.

**ESTATE DUTY (PROBATE AND SUCCESSION DUTIES).** The *Death Duties (Taxing) Act, 1934-1966* imposes duties on the estates of deceased persons and specifies the rates of duty. Conditions relating to probate and the administration of estates are contained in the *Administration Act, 1903-1970*. Differential rates of estate duty and amounts of exemption apply according to distinct categories of legatee. The following table shows the amounts of duty payable at 30 June 1970 on estates of persons who died after 12 December 1966, the date of commencement of the *Administration Act Amendment Act, 1966*. (The *Death Duties (Taxing) Act Amendment Act, 1970* varies the rates of duty payable on estates of persons who died on or after 1 July 1970.)

ESTATE DUTY—AMOUNTS PAYABLE AT 30 JUNE 1970  
CLASSIFIED ACCORDING TO VALUE OF ESTATE

Value of estate (a)	Amount payable where estate passes to—			
	Widow, widower, etc. (b)	Children aged 21 years or over (c)	Brothers, sisters, or parents	Any other person (d)
\$	\$	\$	\$	\$
1,500	Nil	Nil	Nil	Nil
3,000	Nil	Nil	90	120
5,000	Nil	Nil	250	300
10,000	Nil	300	750	850
15,000	Nil	650	1,350	1,500
20,000	600	1,100	1,950	2,150
30,000	1,950	2,200	3,350	3,650
50,000	4,950	5,000	6,750	7,250
70,000	8,550	8,600	10,750	11,450
90,000	12,600	13,000	15,550	16,450
110,000	17,300	18,400	21,150	22,450
130,000	22,800	24,800	27,750	29,450
150,000	29,200	32,200	35,350	37,450
170,000	36,800	40,400	44,150	46,650
200,000	49,950	52,000	59,150	62,250
250,000	62,500	65,000	75,000	80,000
500,000	125,000	130,000	150,000	160,000

(a) Final balance of real and personal estate of the deceased person after deducting all debts.  
 (b) Widow, widower, children aged under 21 years, wholly dependent adult children, or wholly dependent widowed mother, of the deceased. (c) Children aged 21 years or over (other than wholly dependent adult children) or other issue of the deceased. (d) Or any body corporate or unincorporate.

**STAMP DUTIES.** The *Stamp Act, 1921-1970* imposes stamp duties and prescribes the rates applying to a great number of transactions relating to a wide range of property, commodities and services.

**LAND TAX.** The *Land Tax Assessment Act, 1907-1970* authorises a tax, with certain specified exemptions, on every owner of land, and the rates of tax are prescribed by the *Land Tax Act, 1948-1969*. The following table shows the rates of tax and the amounts of tax payable, in respect of the assessment year 1969-70, on improved land and unimproved land of the values specified.

LAND TAX—RATES OF TAX AND AMOUNTS PAYABLE  
ASSESSMENT YEAR 1969-70

Unimproved value—		Improved land		Unimproved land	
Exceeding	Not exceeding	Tax on amount in first column	Tax per dollar on remainder	Tax on amount in first column	Tax per dollar on remainder
\$	\$	\$	cents	\$	cents
Nil	5,000	Nil	0·3	Nil	1·00
5,000	10,000	15	0·4	50	1·25
10,000	15,000	35	0·5	112·50	1·50
15,000	20,000	60	0·6	187·50	1·75
20,000	25,000	90	0·7	275	2·00
25,000	30,000	125	0·8	375	2·25
30,000	35,000	165	0·9	487·50	2·50
35,000	40,000	210	1·0	612·50	2·75
40,000	45,000	260	1·1	750	3·00
45,000	50,000	315	1·2	900	3·25
50,000	60,000	375	1·3	1,062·50	3·50
60,000	70,000	505	1·4	1,412·50	3·75
70,000	80,000	645	1·5	1,787·50	4·00
80,000	90,000	795	1·6	2,187·50	4·25
90,000	100,000	955	1·8	2,612·50	4·50
100,000	110,000	1,135	2·0	3,062·50	4·75
110,000	120,000	1,335	2·2	3,537·50	5·00
120,000	upwards	1,555	2·4	4,037·50	5·25

**LIQUOR LICENCES.** Licences and permits authorising the holder to sell or supply fermented and spirituous liquors are granted under the provisions of the *Liquor Act, 1970*. The *Liquor Act*, which repeals the *Licensing Act, 1911-1969*, became operative with effect from 1 July 1970. It prescribes the fees payable in respect of liquor licences and permits. The several types of licence for which the Act provides are shown in the table *Liquor Licences in Force* on page 260. Annual licence fees are assessed as a proportion of the gross amount paid for liquor purchased for licensed premises or, in the case of wholesale spirit merchants' and brewers' licences, the gross amount received for liquor sold. The proportion prescribed by the Act is  $7\frac{1}{2}$  per cent for a tavern licence or a store licence and  $5\frac{1}{2}$  per cent for all other licences. An additional annual fee of \$60 is payable in respect of a wholesale spirit merchant's licence and a brewer's licence.

**TOTALISATOR AGENCY BOARD BETTING TAX.** The *Totalisator Agency Board Betting Tax Act, 1960-1970* imposes a tax on all moneys paid to the Board in respect of bets made through or with the Board. The rate of tax payable at 30 June 1970 was  $5\frac{1}{2}$  per cent.

**BETTING INVESTMENT TAX.** The *Betting Investment Tax Act, 1959-1966* imposes a tax on each bet made by a bookmaker in registered premises and on each bet made through or with the Totalisator Agency Board. The amount of tax payable at 30 June 1970 was three cents on each such bet. (The *Betting Investment Tax Act* was repealed, with effect from 1 January 1971, by the *Betting Investment Tax Act Repeal Act, 1970*.)

**TOTALISATOR DUTY.** The *Totalisator Duty Act, 1905-1970* authorises the payment of duty on the takings of totalisators operated by horse-racing clubs and prescribes the rates to be paid. Differential rates apply to totalisators operated within a radius of twenty-five miles from the General Post Office, Perth and those situated outside this area. In 1969-70, the principal rates of duty payable in respect of totalisators in the former area were 9 per cent of the gross takings from win and place transactions and 5 per cent of the gross takings from wagering transactions known as 'jack pots', 'quinellas' and 'doubles'; for totalisators outside that area, the rate was 5 per cent in respect of all transactions.

**BOOKMAKERS BETTING TAX.** The *Bookmakers Betting Tax Act, 1954-1959* provides for a tax on money paid or promised as the consideration for bets made by or on behalf of bookmakers. In respect of turnover of the year ended 31 July 1970 the rates applying to on-course transactions were  $1\frac{1}{4}$  per cent of amounts up to \$100,000 and  $1\frac{1}{2}$  per

cent of the remainder. For off-course transactions the rate was  $2\frac{1}{2}$  per cent of amounts up to \$50,000, the rate payable on each additional \$50,000 of turnover increasing by  $\frac{1}{2}$  per cent up to \$300,000; on turnover exceeding \$300,000 the rate was  $3\frac{1}{2}$  per cent. (The *Bookmakers Betting Tax Act Amendment Act, 1970* provides that from 1 January 1971 the rates applicable to on-course transactions shall be 2 per cent of amounts up to \$100,000 and  $2\frac{1}{2}$  per cent of the remainder.)

**TOTALISATOR LICENCES.** The *Totalisator Regulation Act, 1911* provides for the licensing of totalisators operated by horse-racing clubs. Licence fees are prescribed by regulation and are payable annually in respect of the calendar year. For the year 1970 the fee payable was \$2 for each \$2,000 (or part of \$2,000) passing through the totalisator.

**MOTOR VEHICLE REGISTRATION FEES.** The *Traffic Act, 1919-1970* provides for the registration of vehicles and prescribes the licence fees to be paid in respect of the several classes of vehicles required to be registered. Fees are based on the tare weight of the vehicle (except for motor cycles, which are subject to a standard fee). In 1970 the annual licence fee for a motor car or station wagon, for example, was \$2 where the tare weight did not exceed one cwt, the fee increasing progressively to \$39 where the tare weight was thirty-one cwt, and thereafter by \$1 for each additional cwt. The annual fee for a motor cycle was \$5. The fee payable on transfer of a licence was \$2 in the case of a motor car or station wagon, and \$1 in the case of a motor cycle.

**MOTOR VEHICLE DRIVERS' LICENCES.** The *Traffic Act, 1919-1970* authorises the issue of drivers' licences to persons of a minimum age of seventeen years, specifies other conditions to be satisfied, and prescribes the fees to be paid on application for, and issue or renewal of, a licence. In 1970 the fee payable on application was \$4, and on issue or annual renewal, \$3 (or \$1 in the case of a licence to drive a passenger vehicle).

**MOTOR VEHICLE THIRD PARTY INSURANCE SURCHARGE.** The *Motor Vehicle (Third Party Insurance Surcharge) Act, 1962-1968* imposes a surcharge of \$2 per annum on premiums paid in respect of policies of insurance with The Motor Vehicle Insurance Trust.

**ROAD MAINTENANCE CONTRIBUTION.** The *Road Maintenance (Contribution) Act, 1965-1970* imposes a charge on the operations of any commercial goods vehicle having a load capacity of more than eight tons. In 1970 the rate of the charge was five-eightieths of a cent per ton-mile calculated on the basis of the tare weight plus two-fifths of the load capacity. The Act provides that, in specified circumstances, the charge may be levied on vehicles having a load capacity of eight tons or less.

**TRANSPORT COMMISSION LICENCES.** The *Road and Air Transport Commission Act, 1966-1970* provides for the licensing of public vehicles in the categories of omnibus, commercial goods vehicle, trailer or semi-trailer, and aircraft. Licence fees are as determined from time to time by the Commissioner of Transport, subject to certain maximum charges prescribed by the Act. In the case of an omnibus, for example, the fee may not exceed 6 per cent of the gross earnings, or \$10 per annum for each unit of the maximum number of passengers which it is licensed to carry, the basis of assessment being that considered by the Commissioner to be the more appropriate.

**PASSENGER VEHICLE AND CARRIERS' LICENCES.** Prior to the operation of the *Traffic Act Amendment Act (No. 4), 1965* the annual fee payable under the provisions of the Traffic Act for a passenger vehicle licence (subject to certain exceptions) or a carriers' licence was \$1.50 per wheel or per pair of dual wheels. The fee was abolished with effect from 1 December 1965.

**TAXI CONTROL BOARD LICENCES.** The *Taxi-cars (Co-ordination and Control) Act, 1963-1970*, under which the Taxi Control Board is constituted, requires that taxi-cars operating in the Metropolitan Traffic Area and other areas as declared shall be licensed, and prescribes maximum fees payable. In 1970 these fees were \$30 on the issue or annual renewal of a licence, and \$4 on the transfer of a licence.

**METROPOLITAN REGION IMPROVEMENT TAX.** The *Metropolitan Region Improvement Tax Act, 1959-1966* authorises a tax, with certain specified exemptions, on every owner of land within the Metropolitan Planning Region. (The Region is coterminous with



the Perth Statistical Division; see map at back of Year Book.) The rate of tax payable for the assessment year ended 30 June 1970 was one-quarter of a cent for every dollar of the unimproved value of all land chargeable with the tax.

**VERMIN RATE.** The *Vermin Act, 1918-1965*, in addition to prescribing levies imposed for the purposes of local Vermin Boards, authorises a special vermin rate, the revenue from which is used by the Agriculture Protection Board for the control or eradication of animals, birds and insects declared to be vermin within the meaning of the Act. Subject to certain exemptions, every holding of an area of more than five acres is rateable. The rate, as prescribed by the Act, may not exceed two and one-half cents in the dollar of the unimproved capital value in the case of land held under pastoral lease, or five-twelfths of a cent in the dollar in the case of other holdings. For the assessment year 1969-70, the rate was two cents in the dollar on pastoral leases and 0·14 of a cent in the dollar on other holdings. (The *Vermin Act Amendment Act, 1970* suspends imposition of the rate with effect from 30 June 1970.)

**NOXIOUS WEEDS RATE.** The *Noxious Weeds Act, 1950-1969* contains provisions relating to noxious weeds which are generally similar to those of the Vermin Act in relation to declared vermin. The maximum rate as prescribed by the Act is, in the case of a pastoral lease, one and one-quarter cents and, in the case of other land, five twenty-fourths of a cent in the dollar of the unimproved value of the holding. In 1969-70 the rate was not levied in respect of pastoral land. The rate payable on other land was 0·07 of a cent in the dollar. (The noxious weeds rate was abolished, with effect from 1 July 1970, by the *Noxious Weeds Act Amendment Act, 1970*.)

**FRUIT FLY ERADICATION.** The *Plant Diseases Act, 1914-1969* provides for the compulsory registration of orchards and prescribes registration fees, which are paid to a fund to finance the control, prevention, and eradication of the fruit fly pest. In 1970 the annual fee payable for an orchard containing twenty-four trees or less was twenty cents; for an orchard containing more than twenty-four but less than one hundred trees, fifty cents; and for an orchard of not less than one acre, fifty cents per acre and fifty cents for each additional part of an acre.

## STATE GOVERNMENT FINANCE

Moneys collected and expended by the State Government are dealt with through accounts based on funds of three types, the Consolidated Revenue Fund, the General Loan Fund and Trust Funds. The transactions of these Funds are summarised in the Public Accounts prepared each year by the Treasurer and in the Financial Statement presented to the Parliament by the Treasurer in introducing the annual budget.

Public finance statistics published by the States are limited generally to dissections of the revenue, loan and debt transactions of State Governments and local government authorities. Limited analysis of other State Government accounts, such as trust funds, and the revenue accounts and balance sheets of semi-government authorities, has made it difficult to obtain aggregations of receipts and outlay of public authorities taken as a whole.

Accordingly, a considerable amount of work has been done in recent years on the development of a new system with the aim of providing comprehensive statistics of the financial transactions of all public authorities. This information is required by government departments and many other users for economic analysis and social inquiries, and for a wide variety of other purposes.

Although comprehensive statistics compiled on the new basis have not yet been published for the several States, some information is available in *Public Authority Finance: 1963-64 to 1967-68*, issued 6 July 1970 by the Commonwealth Statistician, Canberra. Comprehensive data for Australia as a whole appear in *Australian National Accounts: National Income and Expenditure*, published annually by the Commonwealth Statistician, who also provides quarterly estimates.

### Consolidated Revenue Fund

All State revenues, apart from those which are credited to trust or special accounts, are paid into the Consolidated Revenue Fund. Disbursements from the Fund are authorised by the Parliament, each year under an Appropriation Act, or under Special Acts subject to periodical review. Among the permanent appropriations by Special Acts are such items as the salaries of the Governor of Western Australia, the Judges of the Supreme Court and Members of Parliament, interest charges on the public debt, contributions to the Public Debt Sinking Fund, payments to the State Superannuation Fund and the annual subsidy to the University of Western Australia.

The principal sources of revenue, as shown in the following table, are the grants and other financial assistance received from the Commonwealth Government; the income of public utilities; departmental revenues from reimbursements, fees and services; taxation; and territorial revenues.

The payments made to Western Australia by the Commonwealth Government from Consolidated Revenue during each of the years from 1964-65 to 1968-69 appear in the table on page 269. Not all of these moneys are paid to the State Consolidated Revenue Fund, as some of them are provided for specific purposes and are therefore paid to trust or other accounts.

#### CONSOLIDATED REVENUE FUND—SOURCES OF REVENUE (\$'000)

Nature of revenue	1964-65	1965-66	1966-67	1967-68	1968-69
Collected by the State—					
Taxation (a) .....	19,512	22,574	27,536	34,916	41,602
Territorial revenues (b) .....	4,107	4,598	7,655	11,845	17,301
Public utilities—					
Railways .....	36,381	41,864	48,194	51,183	49,163
Water supplies, sewerage and drainage .....	2,906	3,308	4,073	4,500	4,538
Other public utilities .....	491	511	520	543	706
Departmental revenue—Reimbursements, fees, etc. ....	26,712	28,753	31,461	33,135	33,035
Other .....	1,468	1,589	1,959	1,999	2,115
Total .....	91,578	103,196	121,398	138,121	148,460
Received from the Commonwealth (c)—					
Interest on State debts .....	947	947	947	947	947
Special grants .....	17,120	24,038	19,406	15,518	582
Financial assistance grants .....	70,498	78,474	86,396	96,152	(d) 123,796
Special financial assistance grant .....	....	....	....	....	1,296
Total .....	88,565	103,459	106,748	112,617	126,621
GRAND TOTAL .....	180,143	206,655	228,146	250,738	275,081

(a) For net amounts collected, see table *Net Collections of State Taxation* on page 277.  
sales, leases and licences relating to land, mining and timber. (c) See table on page 269.

(b) Comprises revenue from royalties,  
(d) Includes \$15.5 million in place  
of a 'Special grant'; see letterpress *The Commonwealth Grants Commission* on page 267.

In the five-year period ended 30 June 1969, revenues collected by the State amounted to \$603 million. Of this total \$249 million (41.3 per cent) came from public utilities, the principal contributor being government railways which accounted for \$227 million. Departmental revenues amounted to \$153 million, or 25.4 per cent of the total collected by the State. The main contributing Departments in 1968-69 were Treasury (\$15.7 million, including \$14.7 million on account of interest and sinking funds), Harbour and Light (\$3.30 million), Police (\$1.95 million), Printing (\$1.43 million), Forests (\$1.38 million), Public Works (\$1.30 million), Education (\$0.99 million), and Land Titles (\$0.87 million).

The figures appearing against the item 'Taxation' comprise Consolidated Revenue Fund receipts from probate and succession duties, stamp duties, land tax, liquor licences, totalisator duty and licences, bookmakers betting tax, bookmakers' licences, Totalisator Agency Board betting tax, betting investment tax, motor vehicle third party insurance surcharge, and certain licences in addition to those already mentioned. Some account of the rates and conditions applying to the several taxes and other levies is given in the section *Commonwealth and State Taxation* on pages 272-5.

Territorial revenues are those derived from royalties, sales of Crown land, and the issue of leases, licences and permits in connection with land, mining and timber. Reference to the several types of tenure in these categories will be found in Chapter VII, Part 1—*Land Tenure and Settlement*.

There has been a considerable increase in recent years in revenue for mining royalties, due principally to greatly accelerated exploitation of iron-ore and nickel deposits and the commencement of oil drilling on a commercial scale. Reference to these developments will be found in the final section, *Mining and Quarrying*, of Chapter VIII, Part 1. Collections of royalties on all minerals amounted to \$0.29 million in 1964-65, \$0.48 million in 1965-66, \$2.64 million in 1966-67, \$6.24 million in 1967-68, and \$11.0 million in 1968-69. Total revenue from this source in 1969-70 was \$15.7 million, comprising \$13.1 million from iron ore, \$1.92 million from crude petroleum, \$0.31 million from nickel, \$0.19 million from bauxite, \$0.04 million from salt, and \$0.15 million from all other minerals.

The following table gives details of net collections of State taxation. Payments to trust or special accounts as well as to Consolidated Revenue are shown.

NET COLLECTIONS OF STATE TAXATION  
(\$'000)

Nature of tax	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Paid to Consolidated Revenue Fund—</b>					
Probate and succession duties	3,006	3,924	4,765	5,162	6,297
Stamp duties not elsewhere included	7,670	8,709	11,681	16,669	21,173
Land	2,831	3,324	3,514	4,702	4,746
Liquor licences	1,927	2,013	2,323	2,566	2,848
<b>Racing—</b>					
Totalisator Agency Board betting tax	1,680	1,794	1,971	2,099	2,398
Betting investment tax	514	549	574	579	645
Totalisator duty (a)	307	356	395	448	521
Bookmakers betting tax and licences	132	134	152	165	196
Stamp duty on betting tickets	58	56	55	61	66
Totalisator licences	5	5	6	7	8
Stamp duty on totalisator dividends (b)	1	1	1	(b)	(b)
<b>Motor vehicle—</b>					
Registration fees (a) (c)	51	(c) 24	(c) 693	(c) 760	(c) 838
Drivers' and riders' licences and fees (a) (d)	127	168	693	760	838
Stamp duty on registration and transfer	690	965	1,366	1,555	1,670
Third party insurance surcharge	572	609	661	700	755
Other	11	6	22	19	28
Licences not elsewhere included	595	565	600	693	928
<b>Total</b>	<b>20,176</b>	<b>23,203</b>	<b>28,719</b>	<b>36,185</b>	<b>43,118</b>
<b>Paid to trust or special accounts—</b>					
<b>Racing—</b>					
Totalisator duty (e)	76	87	97	110	131
<b>Motor vehicle (f)—</b>					
Registration fees (e) (g)	7,406	8,944	10,357	10,936	11,939
Drivers' and riders' licences (g)	658	891	545	588	641
Road maintenance contribution	—	392	2,540	2,873	3,210
Transport Commission licences	248	315	358	499	615
Passenger vehicle and carriers' licences (h)	39	(h) 25	(h)	(h)	(h)
Taxi Control Board licences	17	15	15	16	16
Other	2	2	3	4	2
Other vehicle registration fees	13	2	3	36	51
Metropolitan region improvement	474	489	550	1,101	1,656
Vermin	374	450	441	534	593
Noxious weeds	56	82	140	205	235
Fruit fly eradication	42	41	37	36	35
<b>Total</b>	<b>9,404</b>	<b>11,754</b>	<b>15,100</b>	<b>16,937</b>	<b>19,125</b>
<b>GRAND TOTAL</b>	<b>29,580</b>	<b>34,957</b>	<b>43,819</b>	<b>53,122</b>	<b>62,243</b>

(a) Part collections only; for amounts paid to trust or special accounts, see below.

(b) Abolished with effect from 1 February 1967.

(c) From 1 December 1965, fees previously paid to Consolidated Revenue Fund under this heading have been credited to the Main Roads Trust Account and included in 'Registration fees' below.

(d) Includes conductors' licences.

(e) Part collections only; for amounts paid to Consolidated Revenue Fund, see above.

(f) See letterpress *Finance for Roads*, Chapter IX, Part 3.

(g) For purposes of comparison with other States, fees collected by local government authorities outside the Metropolitan Traffic Area have been treated as State taxation and included here.

(h) Abolished with effect from 1 December 1965. See also table *Summary of Local Government Revenue* on page 286.

The amounts shown in the preceding table are grouped according to the nature of the tax rather than the method of collection. Thus stamp duties on betting tickets and revenue from bookmakers' licences and totalisator licences are included under the heading 'Racing' and not under 'Stamp duties' or 'Licences'. It will be seen that, although

the figures represent net collections, the aggregates of the amounts shown as payments to the Consolidated Revenue Fund exceed those appearing as taxation revenue (gross) in the table on page 276. This is accounted for by the fact that some types of licences and other fees are not included under the heading of taxation in the Public Accounts, earnings from them being credited to departmental revenue. Items dealt with in this way include drivers' and riders' licences and fees as shown in the first part of the table, as well as licences relating to firearms; factories and shops; fishing, pearling and game; and marine collectors. Other moneys paid to departmental revenue are fees collected under the provisions of the Companies Act and the Business Names Act.

Motor vehicle taxation shown as paid to Consolidated Revenue under the heading 'Stamp duty on registration and transfer' is collected by authority of the *Stamp Act, 1921-1970*. An amendment to the Act, effective from 31 December 1963, imposed a duty, subject to certain statutory exemptions, on a motor vehicle licence or the transfer of a licence at the rate of \$1 for every \$200, or part of \$200, of the value of the vehicle to which the licence or transfer relates. A further amendment to the Act increased the rate to \$1.50 with effect from 1 December 1965.

CONSOLIDATED REVENUE FUND  
EXPENDITURE ACCORDING TO NATURE OF SERVICE  
(\$'000)

Nature of expenditure	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Expenditure on public utilities—</b>					
Railways .....	36,965	40,300	45,397	52,173	51,377
Water supplies, sewerage and drainage .....	5,441	5,852	6,779	7,583	11,512
Other .....	954	955	1,006	972	1,127
<b>Total .....</b>	<b>43,360</b>	<b>47,106</b>	<b>53,182</b>	<b>60,728</b>	<b>64,016</b>
<b>Departmental expenditure—</b>					
Agriculture .....	3,215	3,519	3,967	4,359	5,013
Child Welfare .....	1,720	1,879	2,130	2,272	2,649
Crown Law .....	1,976	2,189	2,596	2,831	3,232
Education .....	29,133	34,016	36,746	41,224	46,441
Forests (a) .....	1,248	1,297	1,402	1,577	1,600
Harbour and Light .....	1,299	1,540	1,514	1,896	2,041
Industrial Development .....	647	761	866	970	874
Lands and Surveys .....	2,408	2,616	3,087	3,535	3,857
Mental Health Services .....	3,152	3,481	4,215	4,800	5,304
Metropolitan (Perth) Passenger Transport Trust—					
Recoup of loss .....	956	1,325	618	552	925
Mines .....	1,639	1,780	2,011	2,495	2,372
Native Welfare .....	1,860	2,131	2,245	2,670	3,056
Police .....	5,166	5,529	6,119	6,879	7,936
Printing .....	1,449	1,631	978	950	1,188
Prisons .....	878	949	1,271	1,677	2,012
Public Health .....	18,009	19,605	22,213	24,494	28,310
Public Works .....	5,359	6,196	7,252	8,092	9,404
Treasury .....	339	353	471	488	547
University of Western Australia—Additional payments (a) .....	2,421	2,831	2,901	3,460	3,509
War Service Land Settlement Scheme—Contribution to capital losses .....	459	1,382	1,400	1,400	1,400
Western Australian Coastal Shipping Commission (b)—Recoup of loss .....	2,805	2,481	2,357	2,629	3,251
Other .....	13,556	16,480	18,327	16,632	19,957
<b>Total .....</b>	<b>99,694</b>	<b>113,971</b>	<b>124,686</b>	<b>135,881</b>	<b>154,877</b>
<b>Expenditure under special Acts—</b>					
Forests Act (c) .....	2,152	2,363	2,874	2,948	2,775
Loan Acts (public debt) (d)—					
Interest .....	28,223	31,023	34,217	36,032	38,709
Sinking fund contributions .....	6,446	6,903	7,445	7,832	8,373
Parliamentary salaries and allowances .....	566	705	719	716	844
Superannuation Acts—Government employees .....	2,587	2,709	2,855	3,256	3,785
University of Western Australia Act (c) .....	500	500	500	500	500
Other .....	1,005	1,061	1,330	1,632	1,830
<b>Total .....</b>	<b>41,478</b>	<b>45,264</b>	<b>49,939</b>	<b>52,916</b>	<b>56,817</b>
<b>Other expenditure .....</b>	<b>307</b>	<b>324</b>	<b>366</b>	<b>385</b>	<b>427</b>
<b>GRAND TOTAL .....</b>	<b>184,840</b>	<b>206,665</b>	<b>228,174</b>	<b>249,909</b>	<b>276,137</b>

(a) For expenditure under Special Acts, see below. (b) The Western Australian Coastal Shipping Commission replaced the former State Shipping Service with effect from 15 November 1965. (c) For additional payments, see *Departmental expenditure* above. (d) From 1966-67, includes exchange on overseas payments previously charged to *Departmental expenditure*.

In the five-year period ended 30 June 1969, expenditure under the heading 'Departmental' amounted to \$629 million, or 54.9 per cent of all expenditure from the Consolidated Revenue Fund. Education (\$188 million) and Public Health (\$113 million) together accounted for 47.7 per cent of Departmental expenditure. Other large items were those attributable to Public Works (\$36.3 million), Police (\$31.6 million), Mental Health Services (\$21.0 million), Agriculture (\$20.1 million), and Lands and Surveys (\$15.5 million).

Expenditure on public utilities (\$268 million) amounted to 23.4 per cent of the total, the predominant item being Railways (\$226 million).

Commitments under Special Acts accounted for \$246 million, or 21.5 per cent of all expenditure. The principal amounts were those relating to Loan Acts (\$205 million) and legislation providing pensions for government employees (\$15.2 million).

The amount paid under the *Forests Act, 1918-1969* represents nine-tenths of the net annual revenue of the Department and is credited to a fund for forests improvement and reforestation. The *University of Western Australia Act, 1911-1970* provides for the payment of an annual subsidy of \$500,000 and 'such additional amounts as may be appropriated by Parliament from time to time'. In 1968-69 additional payments amounting to \$3.51 million were made from Departmental expenditure. Further details of University finance are given in Chapter V, Part 1.

The particulars shown in the preceding table and in the table on page 276 are an abridged form of the presentation given in the Public Accounts. It is, of course, possible to present the figures of income and expenditure of the Consolidated Revenue Fund on other bases for particular purposes. One such grouping is a dissection according to function as in the following table. The classification used has been summarised for the purposes of this table from a more detailed statement appearing in *Statistics of Western Australia—Finance*.

CONSOLIDATED REVENUE FUND  
REVENUE AND EXPENDITURE CLASSIFIED ACCORDING TO FUNCTION  
(\$'000)

Function	1967-68			1968-69		
	Revenue	Expenditure		Revenue	Expenditure	
		Gross	Net		Gross	Net
Legislation .....	....	1,519	1,519	....	1,532	1,532
General administration and services, not elsewhere included .....	*151,904	8,566	Cr*143,338	173,589	9,366	Cr. 164,224
Law, order and public safety .....	2,348	12,018	9,670	2,664	13,928	11,264
Education .....	977	*49,722	*48,745	1,080	56,352	55,272
Cultural and recreational facilities .....	....	1,781	1,781	....	2,889	2,889
Public health .....	1,384	29,898	28,514	1,520	34,321	32,801
Welfare .....	307	5,774	5,467	408	6,734	6,325
War and defence .....	....	94	94	....	31	31
Immigration .....	....	353	353	....	485	485
Regulation of trade and industry and industrial safety .....	544	909	365	657	1,000	343
Development and conservation of natural resources and assistance to industry .....	20,965	32,168	11,203	26,696	38,316	11,620
Transport and communication .....	54,629	58,601	3,972	52,673	58,830	6,157
Power, fuel and light .....	306	192	Cr. 114	315	46	Cr. 269
Housing .....	11	60	50	18	137	119
Banking and insurance .....	*255	74	Cr. *181	142	83	Cr. 59
Public debt charges .....	16,669	44,183	27,514	14,687	47,434	32,746
Miscellaneous .....	441	*3,996	*3,556	630	4,653	4,023
<b>Total ....</b>	<b>250,738</b>	<b>249,909</b>	<b>(a) Cr. 829</b>	<b>275,081</b>	<b>276,137</b>	<b>(b) 1,056</b>

(a) Published Budget surplus, \$828,636.

(b) Published Budget deficit, \$1,055,618.

\* Revised.

The table is designed to show (in respect of the Consolidated Revenue Fund only) the gross and net cost of each function of Government irrespective of the Department or Departments administering these functions. In cases where an activity is such that

it involves more than one function, each of its components has been included in that function which is considered to be the most appropriate. For example, in classifying expenditure attributable to child welfare, the custody and care of delinquent children is included under 'Law, order and public safety' and the education of children in institutions under 'Education', only the balance being assigned to the item 'Welfare'.

The amount shown as revenue under the heading 'General administration and services, not elsewhere included' is more than three-fifths of the total. The item includes receipts from the Commonwealth and taxation collected by the State (see table on page 276, amounting in all to \$148.4 million in 1967-68 and \$169.3 million in 1968-69).

By a provision of the *State Government Insurance Office Act, 1938-1965* the State Government Insurance Office is required to pay each year to the Treasury the equivalent of the amount of State taxes on profits or income that any insurance company, other than a life insurance company, would be liable to pay. The amounts shown as revenue under 'Banking and insurance' includes the sum of \$115,639 for 1967-68 (nil in 1968-69) in relation to such payments. The expenditure under the heading of 'Banking and insurance' comprises mainly reimbursements from the Treasury to The Rural and Industries Bank of Western Australia of administration expenses incurred in the conduct of its Government Agency Department. These recoups amounted to \$71,382 in 1967-68 and \$82,119 in 1968-69.

### General Loan Fund and Public Debt

**General Loan Fund.** The first Loan Act in Western Australia was assented to in 1872 and gave authority for the raising of a loan for public works, mainly in connection with harbours and rivers, for the purchase of the Perth-Fremantle telegraph line and for railway surveys in the Champion Bay district. A General Loan Fund was established by the Loans Consolidation Act of 1896 which provided for the merging in the Fund of all loan balances unexpended at 30 June 1896, and since that time the proceeds of each new loan have been paid to the credit of the General Loan Fund. Details of net loan expenditure from 1872 to 30 June 1969 are given in the following table.

NET LOAN EXPENDITURE  
(\$'000)

Nature of expenditure	From 1872 to 30 June 1964	1964-65	1965-66	1966-67	1967-68	1968-69	From 1872 to 30 June 1969
Public works, services, etc.—							
Railways, tramways and omnibuses ....	164,464	6,800	7,628	9,068	7,750	10,547	206,257
Electricity supply ....	42,647	794	1,434	2,427	4,542	5,679	57,525
Harbours and rivers ....	44,241	2,822	2,583	1,746	2,402	1,190	54,984
Public buildings—							
Schools ....	53,225	7,008	7,690	8,450	8,580	9,585	94,538
Hospitals ....	38,143	6,514	6,568	6,021	6,365	6,872	70,483
Other ....	20,055	6,426	5,650	3,759	3,871	3,659	43,421
Housing (a) ....	35,810	1,539	1,151	3,082	2,648	2,523	46,754
Water supplies, sewerage, drainage and irrigation ....	148,870	10,957	12,667	13,642	14,552	12,560	213,248
Development of goldfields and mineral resources ....	15,831	126	401	128	334	Cr. 26	16,795
Development of agriculture ....	57,008	429	463	443	697	682	59,722
Miscellaneous ....	71,618	3,362	1,564	2,250	1,436	1,587	81,817
<b>Total ....</b>	<b>691,913</b>	<b>46,779</b>	<b>47,800</b>	<b>51,015</b>	<b>53,177</b>	<b>54,859</b>	<b>945,543</b>
Other expenditure—							
Discounts and flotation expenses ....	7,657	173	293	735	241	109	9,207
Revenue deficits ....	37,901	6	....	....	....	....	37,907
<b>Total ....</b>	<b>45,557</b>	<b>179</b>	<b>293</b>	<b>735</b>	<b>241</b>	<b>109</b>	<b>47,114</b>
<b>GRAND TOTAL ....</b>	<b>737,470</b>	<b>46,958</b>	<b>48,093</b>	<b>51,751</b>	<b>53,418</b>	<b>54,968</b>	<b>992,657</b>

(a) Excludes expenditure from Commonwealth loans under Commonwealth-State Housing Agreement.

The principal net expenditures from the General Loan Fund during the five years ended 30 June 1969 were those relating to Public buildings (\$97·0 million), Water supplies, sewerage, drainage and irrigation (\$64·4 million), Railways, tramways and omnibuses (\$41·8 million), Electricity supply (\$14·9 million), Housing (\$10·9 million), Harbours and rivers (\$10·7 million) and Development of agriculture (\$2·71 million).

Of the total expenditure of \$97·0 million on *Public buildings*, \$41·3 million was spent on the construction of new schools, additions and improvements to existing schools, and technical education institutions, including The Western Australian Institute of Technology. Work on new regional hospitals at Bunbury, Geraldton and Northam, a new hospital at Bentley, new buildings at the Perth Medical Centre, mental health buildings including a training centre at Guildford, and other new or improved hospitals in both metropolitan and country areas accounted for \$32·3 million. Other expenditure included the cost of work on the construction of a new administrative office building to house Government Departments, the erection of a regional gaol at Albany and new police headquarters at Perth, the new Police Academy at Maylands, new court houses and police stations, child welfare institutions, including a rehabilitation centre for girls at Bentley, native welfare buildings, government offices at a number of centres, construction of the Noalimba Reception Centre for migrants at Bull Creek, and additions to homes for the aged and infirm.

Expenditure on *Water supplies, sewerage and drainage* included the cost of work on the Goldfields and Agricultural Water Supply, the Great Southern Towns Water Supply and the Country Towns Water Supply, duplication of the Serpentine trunk main, the Ord River irrigation project, developmental and improvement work in northern and south-west irrigation districts including the completion of Waroona and Glen Mervyn Dams, sewerage works construction and extension of services in the metropolitan area and in country towns, water supplies for towns and stock routes in northern and north-western areas and maintenance and improvements to drainage systems throughout the State. An account of progress in the field of water conservation and supply is given in Chapter VII, Part 2.

Expenditure under the heading of *Railways, tramways and omnibuses* included the cost of new rolling stock, maintenance and renewals of permanent way, land resumptions for, and construction of, marshalling yards at Kewdale, and contribution to costs of railway standardisation. Advances were made to the Metropolitan (Perth) Passenger Transport Trust for the purchase of new omnibuses. Reference is made to the operations of the Trust in Chapter IX, Part 3.

Expenditure attributed to *Electricity supply* includes amounts spent by the State Electricity Commission on power stations at Muja on the Collie coalfield and at Kwinana, and the development of the South-West Power Scheme. The figures do not represent all of the Commission's expenditure as they refer only to the General Loan Fund and therefore exclude moneys available to the Commission from its own public loan raisings. The activities of the State Electricity Commission are described in Chapter VIII, Part 2.

The amounts shown under the heading of *Housing* consist mainly of additional capital provided to The State Housing Commission for the erection of houses, land acquisition and development, and assistance to home builders. The expenditure, which relates only to the General Loan Fund, does not, of course, include moneys applied to the Commission's purposes from Commonwealth loans under the Commonwealth-State Housing Agreement. Reference to the Agreement and to the work of The State Housing Commission will be found in Chapter V, Part 4.

The principal works under the heading of *Harbours and rivers* were those undertaken at the Port of Fremantle, including the building of a container terminal, the development of the outer harbour to serve the industrial complex at Kwinana, the reconstruction of quays, dredging, and the installation of new mechanical equipment. Among other works were the construction of breakwaters and land-backed berths at Bunbury and Esperance, harbour improvements and a new berth at Geraldton, improvements at ports on the north and north-west coasts including a new berth and improvements at Port Hedland, and the construction of a fishing-boat harbour at Fremantle.

Expenditure under the heading of *Development of agriculture* includes the cost of additions to the buildings and laboratories of the Department of Agriculture at South Perth including a State Herbarium, improvements to research stations operated by the Department and to the Agricultural College at Muresk, and land regeneration at the Ord River.

Expenditure on the *Development of goldfields and mineral resources* relates to moneys spent on assistance to prospectors, loans to mine owners, drilling in connection with mineral exploration and miscellaneous works at various State Batteries. It also includes advances on account of the Wundowie Charcoal Iron and Steel Industry for expenditure on capital works.

The aggregate expenditure described as *Miscellaneous* amounted to \$10.2 million, of which \$1.40 million was used to finance advances by The Rural and Industries Bank of Western Australia to primary and secondary industries. A further sum of \$2.02 million was spent on account of the University of Western Australia for new buildings and alterations to existing buildings. The remaining expenditure relates to such items as loans and grants to a number of public bodies, pine planting and forest regeneration, assistance to industry including the resumption of land for industrial purposes and services to industry, road works, and advances to the Western Australian Tourist Development Authority for improvement of tourist facilities.

The following table shows the amounts of loan raisings and redemptions by or on behalf of the State Government during the five-year period ended 30 June 1969.

#### LOAN RAISINGS AND REDEMPTIONS

(\$'000)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Raisings—</b>					
By Commonwealth Government—					
Loans subscribed in Australia .....	47,031	48,052	51,731	53,404	54,967
<b>Total raisings .....</b>	<b>47,031</b>	<b>48,052</b>	<b>51,731</b>	<b>53,404</b>	<b>54,967</b>
<b>Redemptions—</b>					
By National Debt Commission—					
Australian securities .....	6,053	6,598	7,130	7,403	4,480
London securities .....	1,009	1,049	1,059	1,139	2,659
New York securities .....	377	473	422	425	411
Canadian securities .....	17	37	33	33	8
Netherlands securities .....	...	...	...	36	36
<b>Total redemptions .....</b>	<b>7,456</b>	<b>8,158</b>	<b>8,644</b>	<b>9,036</b>	<b>7,594</b>
<b>Excess of raisings over redemptions .....</b>	<b>39,575</b>	<b>39,894</b>	<b>43,087</b>	<b>44,368</b>	<b>47,374</b>

**Public Debt.** Western Australia's gross public debt at 30 June 1969, was \$840 million compared with \$626 million at 30 June 1964, representing an increase of \$214 million during the five years. Total raisings in the financial years 1964-65 to 1968-69 amounted to \$255 million and the value of securities repurchased and redeemed in Australia, London, New York, Canada and the Netherlands by the National Debt Commission was \$41 million. (The functions of the National Debt Commission in relation to the public debts of the States is referred to on page 266.)

The following table presents a summary of public debt transactions in each year of the period between 30 June 1964 and 30 June 1969 and provides a reconciliation between public debt and the aggregate net loan expenditure to each of those dates as shown in the table on page 280.

The second table on page 283, which relates to Western Australia's gross public debt at 30 June 1969, shows the amount of loans payable classified according to country and rate of interest.



**NET LOAN EXPENDITURE AND PUBLIC DEBT**  
(S'000)

Particulars	At 30 June—					
	1964	1965	1966	1967	1968	1969
<b>Debits—</b>						
Aggregate net loan expenditure ....	(a) 737,470	784,428	832,521	884,272	937,690	(a) 992,657
Inscribed stock issued under Agri-cultural Bank Act ....	3,132	3,132	3,132	3,132	3,132	3,132
The Rural and Industries Bank of Western Australia debenture stock (b) ....	2,134	2,134	2,134	2,134	2,134	2,134
Unexpended balance of General Loan Fund ....	5	78	38	18	4	3
<b>Total debits</b> ....	<b>742,741</b>	<b>789,773</b>	<b>837,825</b>	<b>889,556</b>	<b>942,960</b>	<b>997,927</b>
<b>Credits—</b>						
Aggregate redemptions ....	116,697	124,153	132,310	140,954	149,990	157,584
<b>Total credits</b> ....	<b>116,697</b>	<b>124,153</b>	<b>132,310</b>	<b>140,954</b>	<b>149,990</b>	<b>157,584</b>
<b>Balance, Gross public debt</b>	<b>626,045</b>	<b>665,620</b>	<b>705,514</b>	<b>748,601</b>	<b>792,969</b>	<b>840,343</b>
<b>Amount of public debt maturing in—</b>						
Australia ....	550,362	591,340	632,794	677,807	723,808	774,295
London ....	66,853	65,844	64,796	63,737	62,599	59,940
New York ....	7,267	6,890	6,417	5,582	5,156	4,746
Canada ....	638	621	584	551	517	510
Netherlands ....	539	539	539	539	503	467
Switzerland ....	385	385	385	385	385	385
<b>Total, Gross public debt</b> ....	<b>626,045</b>	<b>665,620</b>	<b>705,514</b>	<b>748,601</b>	<b>792,969</b>	<b>840,343</b>
<b>Sinking Fund available for further debt redemption (c) ....</b>	<b>442</b>	<b>473</b>	<b>267</b>	<b>216</b>	<b>408</b>	<b>3,015</b>
<b>Net public debt</b> ....	<b>625,603</b>	<b>665,147</b>	<b>705,248</b>	<b>748,386</b>	<b>792,562</b>	<b>837,329</b>

(a) From table on page 280. (b) Representing stock issued in connection with the acquisition by the Government of the assets of The Midland Railway Company of Western Australia Limited. (c) Representing balance of Sinking Fund held by National Debt Commission.

**PUBLIC DEBT—LOANS PAYABLE : RATES OF INTEREST**  
(S'000)

Rate of interest (per cent)	Amount payable at 30 June 1969 in—						Total
	Australia	London	New York	Canada	Netherlands	Switzerland	
1 ....	5,976						5,976
2.5 ....		8,200					8,200
2.75 ....		6,071					6,071
3 ....		8,240					8,240
3.25 ....		25,972					25,972
3.75 ....			505				505
4 ....	1,200						1,200
4.25 ....	40,371						40,371
4.4 ....	3,705						3,705
4.5 ....	82,098		104			385	82,587
4.6 ....	3,953						3,953
4.625 ....	5,904						5,904
4.75 ....	67,673		521				68,195
4.8 ....	28,319						28,319
4.9 ....	12,200						12,200
5 ....	291,996		741		467		293,204
5.2 ....	7,169						7,169
5.25 ....	163,219		991				164,210
5.3 ....	3,835						3,835
5.375 ....	25,067						25,067
5.4 ....	31,611						31,611
5.5 ....		7,486	1,884				9,370
5.75 ....				510			510
6 ....		3,320					3,320
Interest not payable ....		652					652
<b>Total</b> ....	<b>774,295</b>	<b>59,940</b>	<b>4,746</b>	<b>510</b>	<b>467</b>	<b>385</b>	<b>840,343</b>

The following table relating to Western Australia's gross public debt at 30 June 1969 shows the amount of loans payable classified according to country and year of maturity.

**PUBLIC DEBT—LOANS PAYABLE : YEAR OF MATURITY**  
(S'000)

Latest year of maturity	Amount payable at 30 June 1969 in—						Total
	Australia	London	New York	Canada	Netherlands	Switzerland	
1969 ....	55,578	10,130	505	....	....	....	66,214
1970 ....	62,164	....	....	....	....	....	62,164
1971 ....	56,818	6,071	104	....	....	....	62,993
1972 ....	52,520	....	330	....	....	....	52,850
1973 ....	30,610	....	521	....	....	....	31,131
1974 ....	23,773	22,866	....	....	....	....	46,639
1975 ....	47,549	9,850	....	....	....	....	57,399
1976 ....	58,229	....	....	....	....	385	58,614
1977 ....	18,117	1,215	....	....	....	....	19,333
1978 ....	25,689	4,290	410	....	....	....	30,389
1979 ....	19,654	....	....	....	....	....	19,654
1980 ....	3,847	652	991	....	....	....	5,489
1981 ....	25,353	....	554	510	467	....	26,885
1982 ....	14,781	2,306	1,330	....	....	....	18,417
1983 ....	9,130	2,560	....	....	....	....	11,690
1984 ....	48,245	....	....	....	....	....	48,245
1985 ....	56,548	....	....	....	....	....	56,548
1986 ....	17,020	....	....	....	....	....	17,020
1987 ....	44,110	....	....	....	....	....	44,110
1988 ....	14,942	....	....	....	....	....	14,942
1989 ....	10,646	....	....	....	....	....	10,646
1990 ....	25,065	....	....	....	....	....	25,065
1994 ....	3,359	....	....	....	....	....	3,359
2000 ....	2,584	....	....	....	....	....	2,584
2001 ....	17,800	....	....	....	....	....	17,800
2003 ....	9,773	....	....	....	....	....	9,773
2004 ....	20,391	....	....	....	....	....	20,391
Total ....	774,295	59,940	4,746	510	467	385	840,343

Reference is made on page 266 to the Sinking Funds established by the Financial Agreement of 1927 designed to redeem the public debts of the States. Transactions of the National Debt Sinking Fund in respect of the public debt of Western Australia during the five-year period ended 30 June 1969 are shown in the following table.

**SINKING FUND TRANSACTIONS**  
(S'000)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Balance at beginning of year ....	442	473	267	216	408
Receipts—					
Contributions by State ....	6,452	6,909	7,379	7,848	8,379
Contributions by Commonwealth ....	1,616	1,726	1,844	1,986	2,105
Interest ....	(a)	14	7	17	(a)
Total receipts ....	8,067	8,649	9,230	9,851	10,483
Expenditure—					
Redemptions and repurchases (b) in—					
Australia ....	6,053	6,598	7,130	7,403	4,480
London ....	1,125	1,162	1,191	1,283	2,510
New York ....	823	1,020	895	860	818
Canada ....	35	76	65	60	14
Netherlands ....	....	....	....	54	54
Total expenditure ....	8,036	8,856	9,281	9,659	7,876
Balance at end of year ....	473	267	216	408	3,015

(a) Less than \$500.

(b) At net cost including exchange.

### Trust Funds

Trust funds are divided into three groups, governmental, private, and those which deal with moneys advanced by the Commonwealth Government for specific purposes. A detailed list of trust fund transactions is published quarterly in the *Statement of Receipts and Disbursements of Western Australia*. The following table contains a summary of the more important items selected from this list.

**SUMMARY OF TRUST FUNDS—RECEIPTS AND EXPENDITURE**  
(S'000)

Title of account	1967-68		1968-69		Balance of fund at 30 June 1969
	Receipts	Expenditure	Receipts	Expenditure	
<b>Governmental trust funds—</b>					
Agriculture Protection Board .....	560	397	618	792	98
Crown Law Advance .....	9,360	9,390	9,398	9,347	349
Forests Improvement and Reforestation .....	4,319	4,507	4,815	4,830	456
Hospital Buildings and Equipment .....	1,726	1,195	2,084	1,923	851
Hospital Fund Contributions .....	31,511	31,511	36,788	36,788	....
<b>Housing—</b>					
Government Employees' Housing Authority .....	1,070	1,355	2,086	1,840	252
Kwinana Housing .....	276	307	251	180	....
State Housing Commission .....	27,923	23,772	29,750	27,354	11,348
<b>Insurance—</b>					
Government Fire and Marine Insurance .....	1,032	1,060	1,196	1,176	67
Government Workers' Compensation .....	1,195	1,183	1,307	1,184	365
Railway Accident and Fire Insurance .....	214	166	315	468	312
State Insurance .....	10,353	10,352	11,029	11,117	34
Library Board of Western Australia .....	720	728	799	795	5
Main Roads Department Payroll Surcharge .....	796	792	695	978	204
Metropolitan Region Improvement .....	2,171	2,267	2,938	2,557	300
Milk Board .....	263	253	408	414	31
National Parks Board .....	303	306	333	324	11
Native Welfare Administration .....	2,748	2,748	3,391	3,391	....
Noxious Weeds .....	637	529	660	557	304
Plant Hire .....	1,700	1,674	1,790	1,658	599
Public Debt Sinking Fund .....	9,851	9,659	10,483	7,876	3,015
Public Works Department Payroll Surcharge .....	1,252	1,153	1,522	1,215	727
Railways Rolling Stock Replacement .....	1,883	1,995	1,027	1,420	429
<b>Roads—</b>					
Central Road Fund .....	11,937	11,937	14,213	14,213	....
Main Roads .....	29,012	34,330	32,866	30,513	5,328
Main Roads—New Buildings .....	3,250	158	....	767	2,324
Metropolitan Traffic .....	6,261	6,321	6,794	6,794	....
Mitchell Freeway .....	3,107	1,359	(a)	(a)	3,000
Roads Maintenance Trust .....	2,899	3,126	3,241	3,117	211
Rural and Industries Bank .....	1,755	1,887	1,710	1,442	301
State Electricity Commission Loans—Sinking Fund .....	422	99	423	614	983
Tourist Fund .....	562	615	826	608	560
Transport Commission .....	1,865	1,915	1,608	1,635	281
Vermion Act .....	1,068	1,029	1,601	1,175	990
Western Australian Museum .....	233	231	284	279	30
Other .....	6,716	3,968	4,979	3,762	8,647
<b>Total .....</b>	<b>180,952</b>	<b>174,272</b>	<b>192,226</b>	<b>183,106</b>	<b>42,410</b>
<b>Funds financed from Commonwealth advances—</b>					
Aboriginal Advancement .....	....	....	841	702	140
Schools—Science Buildings and Equipment .....	941	1,061	944	971	82
<b>Housing—</b>					
Commonwealth-State Housing Agreement .....	21,084	19,524	22,611	21,971	7,550
Home Builders .....	4,419	4,452	5,097	3,850	1,311
War Service Homes .....	3,841	3,838	4,133	4,140	4
Ord River Dam Construction .....	100	....	5,125	5,217	8
Petroleum Products Subsidy .....	2,855	2,837	3,066	3,189	87
Pharmaceutical Benefits .....	1,534	1,534	2,053	2,053	....
<b>Roads—</b>					
Beef Cattle Roads .....	1,400	1,400	1,641	1,451	190
Commonwealth Aid Roads Acts .....	36,887	37,183	34,577	33,825	1,022
Scholarship Scheme .....	147	207	....	23	....
Softwood Forestry Agreement .....	....	....	950	600	350
South-West Region Water Supplies .....	1,810	1,810	2,050	2,050	....
Technical Training—Buildings and Equipment .....	1,674	1,592	844	771	73
Water Resources .....	260	260	322	322	....
Other .....	1,329	1,021	1,223	1,453	920
<b>Total .....</b>	<b>78,281</b>	<b>76,721</b>	<b>85,478</b>	<b>82,589</b>	<b>11,737</b>
<b>Private trust funds—</b>					
Charitable Institutions .....	269	268	286	279	142
Clerk of Courts .....	5,070	5,078	5,709	5,728	138
Coal Mine Workers' Pensions .....	559	595	577	578	1
Country High School Hostels Authority .....	468	219	513	581	172
Public Trustee Common Fund .....	8,106	7,993	8,911	8,480	770
Superannuation Fund .....	9,998	9,440	11,315	11,307	314
Superannuation Investment Reserve .....	3,290	200	4,025	100	36,396
Workers' Compensation in Suspense .....	402	394	636	656	53
Other .....	3,500	2,924	3,946	3,353	5,847
<b>Total .....</b>	<b>31,662</b>	<b>27,111</b>	<b>35,919</b>	<b>31,063</b>	<b>43,832</b>
<b>GRAND TOTAL .....</b>	<b>290,894</b>	<b>278,104</b>	<b>313,623</b>	<b>296,759</b>	<b>97,980</b>

(a) Less than \$500.

## LOCAL GOVERNMENT FINANCE

The financial powers of local government authorities in Western Australia are derived principally from the *Local Government Act, 1960-1970*, the main provisions of which are outlined in Chapter III—*Constitution and Government*. Among other statutes affecting local government finance are the Traffic Act, the Health Act, the Water Boards Act, the Vermin Act and the Fire Brigades Act.

## General Revenue

SUMMARY OF LOCAL GOVERNMENT REVENUE (a)  
(\$'000)

Source of revenue	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Taxation—</b>					
<b>Rates—</b>					
Municipal .....	12,019	13,436	14,982	16,819	19,500
Water Board .....	163	198	226	240	253
Vermin Board .....	34	44	57	69	72
<b>Licences and fees—</b>					
Dog .....	33	35	33	41	37
Building .....	141	133	167	197	280
Other (b) .....	48	62	77	*97	109
<b>Total (b) .....</b>	<b>12,438</b>	<b>13,908</b>	<b>15,542</b>	<b>*17,462</b>	<b>20,250</b>
<b>Public works and services—</b>					
<b>Income from property and plant—</b>					
Parks, gardens and other recreational facilities .....	720	877	1,068	1,135	1,440
Halls and other buildings .....	656	645	695	802	829
Vehicles and plant .....	674	805	1,004	1,153	1,215
Land sales .....	2,448	1,060	998	1,565	2,356
Other property .....	721	351	786	1,214	1,111
Contributions for private road construction, etc. ....	1,608	1,997	3,371	3,197	3,440
Sanitation charges (including garbage services) (c) .....	1,114	1,203	1,344	1,519	1,370
<b>Other works and services—</b>					
Municipalities .....	1,023	986	1,190	*1,155	2,792
Water Boards .....	36	41	50	89	87
Vermin Boards .....	7	10	17	13	18
<b>Total .....</b>	<b>9,006</b>	<b>7,975</b>	<b>10,523</b>	<b>*11,842</b>	<b>14,659</b>
<b>Government grants and reimbursements—</b>					
<b>Roads—</b>					
Central Road Trust Fund .....	9,109 (d)	2,630	3,292	4,813	4,912
Main Roads Trust Account .....		3,383	3,696	3,998	4,554
Metropolitan Traffic Trust Account .....		971	861	865	825
Other .....		230	138	348	371
Recreational facilities (e) .....	115	198	260	289	309
Electricity supply .....	37	15	23	21	11
Water Boards .....	1	1	1	1	1
<b>Vermin destruction bonuses—</b>					
Municipalities .....	9	7	6	8	5
Vermin Boards .....	7	5	11	9	6
Other .....	94	107	111	100	188
<b>Total .....</b>	<b>9,372</b>	<b>7,547</b>	<b>8,399</b>	<b>10,452</b>	<b>11,181</b>
<b>Vehicle licences and fees (f) .....</b>	<b>3,254</b>	<b>3,914</b>	<b>4,432</b>	<b>4,602</b>	<b>5,038</b>
<b>Electricity undertakings .....</b>	<b>1,938</b>	<b>2,271</b>	<b>2,621</b>	<b>3,068</b>	<b>3,044</b>
<b>Other revenue—</b>					
<b>Fines and penalties—</b>					
Traffic .....	180	217	264	340	480
Other .....	9	17	24	20	22
Interest .....	335	367	333	366	544
Other .....	743	892	889	826	1,016
<b>Total .....</b>	<b>1,268</b>	<b>1,493</b>	<b>1,509</b>	<b>1,552</b>	<b>2,061</b>
<b>GRAND TOTAL .....</b>	<b>37,276</b>	<b>37,107</b>	<b>43,027</b>	<b>48,979</b>	<b>56,232</b>

(a) Loan receipts are excluded; for particulars see page 289. (b) Excludes revenue from vehicle licences (see 'Vehicle licences and fees' below) and sanitary and garbage fees (see 'Sanitation charges (including garbage services)' below). (c) Excludes revenue received where the charge is incorporated in the general (municipal) rate. (d) Includes special grants paid under the *Traffic Act Amendment Act (No. 2), 1964*. (e) Includes grants from Western Australian Tourist Development Authority. (f) Fees collected by local government authorities outside the Metropolitan Traffic Area. \* Revised.

**TAXATION.** As may be seen from the previous table, revenue from taxation other than motor vehicle registration fees accounts for about one-third of the total receipts of local

authorities and is derived almost entirely from rates. During the five-year period ended 30 June 1969, the total revenue from municipal rates was \$76·8 million, equivalent to 34·5 per cent of revenue from all sources.

**PUBLIC WORKS AND SERVICES.** Revenue from 'Public works and services' amounted to \$54·0 million, or 24·3 per cent of all revenue during the five years to 30 June 1969. Income from property and plant, which includes rents and hire charges for buildings, plant and recreational facilities as well as sales of land, buildings, vehicles and plant, was \$26·3 million. Next in importance were receipts amounting to \$13·6 million from construction of private roads, including driveways to premises, and \$6·55 million from sanitation charges, including garbage services.

**GOVERNMENT GRANTS AND REIMBURSEMENTS.** Grants for road works and recoups of road construction costs constitute the main item in this category, and amounted to \$45·0 million in the five years to 30 June 1969, equivalent to 20·2 per cent of total revenue. Local government moneys for road works are provided from State Government funds. Reference to the operations of these funds will be found in the section *Finance for Roads* in Chapter IX, Part 3. Revenue in the form of reimbursements consists of recoups of expenditure made to the local government authorities by the State Government for expenditure incurred on its behalf in road construction and maintenance, which is undertaken principally for the Main Roads Department but also for other State authorities as, for example, The State Housing Commission.

**MOTOR VEHICLE REGISTRATION FEES.** In Western Australia, there is no single authority responsible for the licensing of motor vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area and other areas as prescribed (see the section *Vehicle Registration, Licences and Traffic Control* in Chapter IX, Part 3). In other parts of the State each local government authority licenses vehicles in its own district, but the *Traffic Act Amendment Act (No. 2), 1969* enables such powers to be transferred, subject to the approval of the Minister, to the Commissioner of Police if a local government authority, by resolution of its Council, so requires. During the five-year period ended 30 June 1969 revenue from vehicle licences and fees collected by local government authorities outside the Metropolitan Traffic Area amounted to \$21·2 million. Moneys so collected are required by the *Main Roads Act Amendment Act, 1969* to be paid to the Mains Roads Trust Account, from which grants are made to the local government authorities under a scheme to which reference is made in the section *Finance for Roads* in Chapter IX, Part 3.

### General Expenditure

**GENERAL ADMINISTRATION.** Expenditure on administration during the five-year period ended 30 June 1969 amounted to \$17·5 million, equivalent to 8·0 per cent of the total expenditure of local government authorities.

**DEBT SERVICES.** Expenditure on debt services includes debt redemption charges, interest payable under hire purchase agreements and interest charges on loans and overdrafts. The total cost of these services (excluding those relating to electricity undertakings) was \$33·0 million in the five years to 30 June 1969.

**PUBLIC WORKS AND SERVICES.** Expenditure under the heading 'Public works and services' during the five-year period ended 30 June 1969 amounted to \$149 million, or 68·4 per cent of the total. 'Roads, paths and bridges', which constitutes the principal item, accounted for \$69·7 million. It includes construction and maintenance costs as well as moneys spent on other road work such as the cleaning and watering of thoroughfares, the provision of street nameplates and seats, street tree planting and street lighting. Other costs attributed to 'Public works and services' are those connected with health, sanitation and garbage services, capital and maintenance expenditure on property and on vehicles and other plant. Some of the items included under the heading 'Public works and services' are financed only partly from revenue, the remaining expenditure being from loan funds (see table on page 289).

GRANTS AND DONATIONS. Many of the local authorities make annual contributions as required by the Fire Brigades Act towards the maintenance of fire brigades, while grants are also made in some cases to hospitals and ambulances, to infant health clinics where they are not under the direct control of the local authority concerned, to other local organisations and to the Western Australian State Symphony Orchestra.

SUMMARY OF LOCAL GOVERNMENT EXPENDITURE (a)  
(\$'000)

Nature of expenditure	1964-65	1965-66	1966-67	1967-68	1968-69
General administration ....	2,740	3,131	3,403	3,847	4,401
Debt services (b)—					
Interest—					
On loans—					
Municipalities ....	2,021	2,243	2,446	2,761	3,123
Water Boards ....	28	30	35	35	42
On overdraft ....	17	19	29	37	37
Redemption—					
Municipalities ....	3,094	3,524	3,882	4,389	4,991
Water Boards ....	44	48	52	57	66
Total (b) ....	5,203	5,864	6,443	7,279	8,259
Public works and services—					
Roads, paths and bridges—					
Construction and maintenance ....	9,762	11,044	13,208	14,054	15,952
Other road work ....	651	519	501	524	738
Street lighting ....	477	509	547	595	658
Property and plant—					
Parks, gardens and other recreational facilities ....	2,575	2,870	3,580	4,049	4,583
Halls and other buildings ....	1,763	2,578	1,878	2,448	2,224
Vehicles and plant ....	2,410	2,358	2,674	3,381	3,116
Other property ....	1,023	1,005	1,849	1,227	1,899
Other public works and services—					
Sanitary and garbage services ....	1,366	1,461	1,648	1,865	2,039
Other health services ....	639	617	644	773	924
Sundry works and services—					
Municipalities ....	2,169	2,697	3,167	4,192	4,722
Water Boards ....	153	156	182	221	231
Vermin Boards ....	43	49	104	83	84
Total ....	23,032	25,863	29,982	33,412	37,170
Grants and donations—					
W.A. Fire Brigades Board ....	300	335	364	390	468
Hospitals and ambulances ....	21	22	26	36	48
Other ....	161	166	195	224	278
Total ....	482	522	585	651	794
Electricity undertakings (including debt services) ....	1,873	2,273	2,623	2,981	3,119
Other expenditure ....	577	520	525	417	636
GRAND TOTAL ....	33,907	38,174	43,562	48,587	54,378

(a) Loan expenditure is excluded; for particulars see page 289.

(b) Excludes debt services of electricity undertakings.

## Loan Transactions

Under the provisions of the local government legislation, local government authorities are constituted as corporate bodies and are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. The conditions imposed by the *Local Government Act, 1960-1970* in relation to loan raisings, the levying of loan rates, the expenditure of loan moneys and the repayment of loans are summarised on pages 123-4 under the heading *Financial Provisions*.

Loans are raised mainly from banks, insurance companies and superannuation funds. The State Government exercises a measure of supervision over the loan transactions of local government authorities and, where a loan is repayable in full at maturity, maintains the necessary sinking fund at the Treasury.

The following table gives a dissection of the loan receipts and expenditure of local government authorities in each financial year during the period from 1964-65 to 1968-69.

### LOCAL GOVERNMENT LOAN RECEIPTS AND EXPENDITURE (\$'000)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
<b>RECEIPTS</b>					
Municipalities—					
Ordinary services .....	6,701	6,942	7,871	10,193	12,163
Health services .....	176	81	61	77	419
Electricity undertakings .....	907	602	816	982	1,072
Water Boards .....	78	139	83	60	174
<b>Total</b> .....	<b>7,862</b>	<b>7,764</b>	<b>8,831</b>	<b>11,313</b>	<b>13,828</b>
<b>EXPENDITURE</b>					
Municipalities—					
Public works and services—					
Roads, paths and bridges .....	1,951	1,910	2,097	2,222	2,818
Parks, gardens and other recreational facilities .....	976	1,742	1,977	1,626	2,672
Halls and other buildings .....	1,598	2,071	2,425	3,036	3,309
Vehicles and plant .....	1,119	1,127	1,119	1,469	1,631
Electricity undertakings .....	862	783	667	1,087	976
Other works and services .....	261	296	266	268	487
Redemptions .....	7	2	....	40	16
Other loan charges, transfers, etc. ....	280	142	27	41	93
Water Boards .....	59	117	98	99	148
<b>Total</b> .....	<b>7,113</b>	<b>8,190</b>	<b>8,676</b>	<b>9,889</b>	<b>12,150</b>

The following table shows the aggregate local government loan debt outstanding at 30 June of each year during the period from 1965 to 1969.

### LOCAL GOVERNMENT LOAN DEBT (\$'000)

Nature of debt	At 30 June—				
	1965	1966	1967	1968	1969
Loan debt outstanding .....	44,723	48,661	53,386	59,275	67,456
Sinking fund balances .....	140	151	149	109	8
<b>Net loan debt</b> .....	<b>44,584</b>	<b>48,511</b>	<b>53,237</b>	<b>59,166</b>	<b>67,448</b>
Net loan debt on account of—					
Ordinary services .....	39,327	42,864	46,965	52,962	60,126
Health services .....	1,509	1,500	1,453	1,407	1,613
Electricity undertakings .....	3,222	3,536	4,140	4,106	4,903
Water Boards .....	525	610	677	691	806
<b>Total, Net loan debt</b> .....	<b>44,584</b>	<b>48,511</b>	<b>53,237</b>	<b>59,166</b>	<b>67,448</b>

### PENSION AND SUPERANNUATION SCHEMES

The Western Australian Government and many local government and semi-government authorities have established pension and superannuation schemes for eligible employees and their dependants, to which both employers and employees contribute. These schemes are operated either through separately constituted funds or through life insurance offices.

The *Superannuation and Family Benefits Act, 1938-1970* applies to employees of State Government Departments, semi-government authorities and other government instrumentalities. The Act establishes The Superannuation Fund and a Provident Account under the management of a Superannuation Board. Contributions made by the State are paid from the Consolidated Revenue Fund.

The *Superannuation, Sick, Death, Insurance, Guarantee and Endowment (Local Governing Bodies' Employees) Funds Act, 1947-1950* enables local government authorities to establish funds to provide benefits for their employees. Contributions made by an authority are paid from its ordinary revenue.

## GOVERNMENT PENSION AND SUPERANNUATION SCHEMES (a)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
OPERATED THROUGH SEPARATELY CONSTITUTED FUNDS					
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees .....	2,436	2,640	2,887	3,218	3,603
Employers .....	2,816	3,134	3,277	3,723	4,340
Interest, dividends and rents .....	1,278	1,522	1,494	2,040	2,240
Other .....	99	108	175	206	57
Total .....	6,629	7,404	7,833	9,187	10,240
Expenditure—					
Pensions .....	3,133	3,330	3,573	4,218	4,840
Lump sum payments (b) .....	432	645	737	*846	949
Other (c) .....	34	33	50	57	96
Total .....	3,599	4,007	4,360	*5,121	5,885
Assets at end of year—					
Cash—					
Deposits with Treasury .....	300	411	....	305	314
Other deposits and cash .....	227	384	418	382	706
Commonwealth Government securities .....	148	127	101	103	106
Local and semi-governmental securities .....	24,922	26,961	28,719	31,376	33,389
Mortgages—					
Housing .....	....	36	137	301	760
Other .....	116	122	121	264	306
Loans to building societies .....	114	145	234	324	440
Company shares .....	21	122	256	291	454
Company debentures and notes .....	28	234	401	491	673
Other assets .....	701	1,634	3,671	4,180	5,377
Total .....	26,579	30,175	34,059	38,016	42,525
less sundry creditors, etc. ....	69	115	399	176	216
Accumulated funds .....	26,509	30,060	33,660	37,841	42,309
Contributors at end of year .....	number 16,096	number 16,954	number 17,835	number 18,804	number 19,330
Pensioners at end of year—					
Ex-employees .....	3,188	3,294	3,357	3,421	3,542
Widows .....	2,040	2,116	2,184	2,259	2,327
Children .....	207	210	208	200	220

## OPERATED THROUGH LIFE INSURANCE OFFICES

Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees .....	404	377	442	510	599
Employers .....	604	526	612	710	850
Surrenders .....	70	87	102	67	129
Death claims and matured policies .....	68	95	109	184	151
Other .....	12	5	8	10	9
Total .....	1,159	1,091	1,273	1,480	1,738
Expenditure—					
Premiums paid to insurance companies .....	940	831	1,029	1,191	1,423
Benefits to contributors—					
On retirement or death .....	69	96	96	189	149
On resignation or dismissal .....	53	73	86	54	106
Other .....	67	76	29	35	27
Total .....	1,129	1,076	1,239	1,469	1,705
Contributors at end of year .....	number 2,734	number 2,746	number 2,921	number 3,041	number 3,294

(a) Schemes established by State Government, local government and semi-government authorities, and the University of Western Australia. (b) On retirement, death, resignation or dismissal. Includes refunds of contributions. (c) Includes gratuities: \$4,444 in 1966-67; and \$187 in 1968-69. \* Revised.

**Parliamentary Superannuation Fund.** The *Parliamentary Superannuation Act, 1970* establishes a Parliamentary Superannuation Fund to provide superannuation, pensions and other benefits for former Members of the Parliament of Western Australia and their dependants. The Fund is financed from contributions paid by members and moneys appropriated from the Consolidated Revenue Fund.



## PARLIAMENTARY SUPERANNUATION FUND

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Income—</b>	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Members	42	51	50	53	51
Government	42	50	50	50	56
Interest	18	21	31	24	31
<b>Total</b>	<b>101</b>	<b>122</b>	<b>131</b>	<b>126</b>	<b>138</b>
<b>Expenditure—</b>					
Pensions	42	53	55	65	93
Lump sum payments (a)	2	....	....	12	6
<b>Total</b>	<b>45</b>	<b>53</b>	<b>55</b>	<b>77</b>	<b>100</b>
<b>Assets at end of year—</b>					
Cash deposits with Treasury	4	2	3	7	11
Commonwealth Government securities	45	45	45	45	45
Local and semi-governmental securities	313	383	451	501	541
Other	4	6	12	7	8
<b>Total</b>	<b>367</b>	<b>436</b>	<b>512</b>	<b>561</b>	<b>606</b>
less sundry creditors, etc.	....	....	....	....	6
<b>Accumulated funds</b>	<b>367</b>	<b>436</b>	<b>512</b>	<b>561</b>	<b>600</b>
<b>Contributors at end of year</b>	<b>number 82</b>	<b>number 80</b>	<b>number 79</b>	<b>number 81</b>	<b>number 81</b>
<b>Pensioners at end of year—</b>					
Ex-members	19	19	17	29	29
Widows	24	27	26	25	26

(a) On retirement, death, resignation or dismissal.

**Coal Mine Workers' Pensions Fund.** The *Coal Mine Workers (Pensions) Act, 1943-1970* establishes a Coal Mine Workers' Pensions Fund to provide pensions and other benefits for persons formerly engaged in coal mining and for their dependants. The Fund is financed from contributions paid by employees and employers and moneys appropriated from the Consolidated Revenue Fund.

## COAL MINE WORKERS' PENSIONS FUND

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Income—</b>	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees	44	47	56	54	51
Employers	165	164	191	183	186
Government	60	60	60	80	129
Interest, dividends and rents	96	104	110	119	80
<b>Total</b>	<b>366</b>	<b>376</b>	<b>418</b>	<b>436</b>	<b>446</b>
<b>Expenditure—</b>					
Pensions	254	266	274	264	282
Lump sum payments—					
On retirement or death	....	1	1	4	....
On resignation or dismissal	4	6	5	4	6
Other	6	6	7	6	6
<b>Total</b>	<b>263</b>	<b>279</b>	<b>287</b>	<b>277</b>	<b>294</b>
<b>Assets at end of year—</b>					
Cash deposits with Treasury	15	11	38	2	1
Commonwealth Government securities	118	118	118	118	118
Local and semi-governmental securities	1,784	1,882	1,984	2,179	2,331
Other	24	25	28	30	29
<b>Total</b>	<b>1,940</b>	<b>2,037</b>	<b>2,169</b>	<b>2,328</b>	<b>2,478</b>
less sundry creditors, etc.	4	3	4	5	3
<b>Accumulated funds</b>	<b>1,937</b>	<b>2,034</b>	<b>2,165</b>	<b>2,323</b>	<b>2,475</b>
<b>Contributors at end of year</b>	<b>number 756</b>	<b>number 732</b>	<b>number 697</b>	<b>number 646</b>	<b>number 628</b>
<b>Pensioners at end of year—</b>					
Ex-employees	258	267	266	275	278
Widows and children	144	192	189	182	208

*Chapter VI—continued*  
**Part 2—Private Finance**  
**CURRENCY**

The power to legislate with respect to currency, coinage and legal tender and the issue of paper money is vested by the Constitution in the Commonwealth Parliament. This power was originally exercised by the Commonwealth Government under the Coinage Act of 1909 and the Australian Notes Act of 1910. These Acts, and later amendments, were superseded by the *Reserve Bank Act* 1965 and the *Currency Act* 1965, when a decimal currency system was adopted in Australia with effect from 14 February 1966.

Prior to the introduction of decimal currency the Australian monetary system was based on that used in the United Kingdom and therefore had as its unit the pound (£) divided into twenty shillings (s.) each of twelve pence (d.). The *Currency Act* 1965, which replaced the *Coinage Act* 1909-1947, provides for the adoption of a monetary unit known as the 'dollar', equivalent in value to ten shillings in the currency previously in use. The dollar is divided into 100 minor units, or 'cents'. Coins are in the denominations of 50 cents, 20 cents, 10 cents, 5 cents, 2 cents and 1 cent. The *Reserve Bank Act* 1965 authorises the issue of notes in the denominations of one dollar, 2, 5, 10, 20 and 50 dollars, or in any other denomination that the Treasurer determines. Notes currently issued are in the denominations of 1, 2, 5, 10 and 20 dollars.

Australian notes are legal tender in Australia to any amount, coins of the denominations of 5, 10, 20 or 50 cents for amounts not exceeding five dollars, and two-cent and one-cent coins for amounts up to and including 20 cents.

**Rates of Exchange**

At 30 June 1970 the par value of the Australian dollar (\$A1) as agreed with the International Monetary Fund was, in terms of sterling currency, nine shillings and fourpence (£stg 0.47), and \$US 1.12 in terms of American currency.

The following table shows the average telegraphic transfer selling rates of exchange for Sydney (New South Wales) on a selection of overseas countries. The figures appearing in the table, which are averages of daily quotations, are based generally on rates quoted by the Commonwealth Trading Bank of Australia.

**OVERSEAS EXCHANGE RATES—AVERAGE TELEGRAPHIC TRANSFER SELLING RATES  
 SYDNEY ON OVERSEAS COUNTRIES: JUNE 1970**

Country	Basis of quotation	Rate of exchange	Country	Basis of quotation	Rate of exchange
Belgium ....	Francs to \$A1 ....	55.03	Netherlands ....	Guilders to \$A1 ....	4.02
Canada ....	Dollars to \$A1 ....	1.16	New Zealand ....	\$A to \$NZ1 ....	1.0020
Ceylon ....	Rupees to \$A1 ....	6.59	Norway ....	Kroner to \$A1 ....	7.93
China (mainland) (a) ....	New Yuan to \$A1 ....	2.72	Pakistan ....	Rupees to \$A1 ....	5.29
Denmark ....	Kroner to \$A1 ....	8.32	Singapore ....	Dollars to \$A1 ....	3.41
France ....	Francs to \$A1 ....	6.12	South Africa ....	Rands to \$A1 ....	0.795
Germany, Federal Republic of	Deutsche Marks to \$A1 ....	4.03	Sweden ....	Kronor to \$A1 ....	5.75
Hong Kong ....	Dollars to \$A1 ....	6.74	Switzerland ....	Francs to \$A1 ....	4.79
India ....	Rupees to \$A1 ....	8.33	Union of Soviet Socialist Republics (a) ....	Roubles to \$A1 ....	1.004
Italy ....	Lire to \$A1 ....	697.00	United Kingdom ....	\$A to £stg1 ....	2.1514
Japan ....	Yen to \$A1 ....	397.81	United States of America	Dollars to \$A1 ....	1.11

(a) Rate of exchange used by the Department of Customs and Excise in converting import values to Australian currency for the purpose of calculating customs duty.

## BANKING

The banking system in Western Australia comprises the Commonwealth banking institutions, The Rural and Industries Bank of Western Australia and the private trading banks.

**Commonwealth Banking Institutions**

Prior to the operation of the Reserve Bank Act and the Commonwealth Banks Act, passed by the Commonwealth Parliament in 1959, the Commonwealth banking institutions were the Commonwealth Bank, the Commonwealth Trading Bank and the Commonwealth Savings Bank. The Commonwealth Bank, in addition to performing the functions of a central bank, controlled the Australian note issue through a Note Issue Department and also provided special banking facilities through the Rural Credits Department, the Mortgage Bank Department and the Industrial Finance Department. The policy of the Banks was determined by a Commonwealth Bank Board.

The *Reserve Bank Act* 1959 repealed the Commonwealth Bank Acts, the first of which was passed in 1911, and established the Reserve Bank of Australia under the control of a Reserve Bank Board. The Reserve Bank was constituted as the central bank and took over the Note Issue Department and the Rural Credits Department of the former Commonwealth Bank. The function of the Rural Credits Department is to make available to statutory authorities or co-operative associations of primary producers advances to assist the marketing or processing of primary products.

The *Commonwealth Banks Act* 1959 constituted the Commonwealth Banking Corporation, which came into being on 14 January 1960 as the authority responsible for the operations of the Trading Bank, the Savings Bank and a new Development Bank. The Development Bank was formed basically from the Mortgage Bank Department and the Industrial Finance Department of the Commonwealth Bank, to provide finance and advice to persons to assist them in primary production or in the establishment or development of industrial undertakings, particularly small enterprises.

**The Rural and Industries Bank of Western Australia**

The Rural and Industries Bank of Western Australia was established by the State Government under the Rural and Industries Bank Act of 1944 to replace the former Agricultural Bank of Western Australia. The Bank consists of a Rural Department and a Government Agency Department, and management is vested in five Commissioners. The Rural Department provides general banking services and, since 1956, has also conducted savings bank business through a Savings Bank Division.

**Trading Banks**

At 30 June 1970 the trading banks conducting business in Western Australia comprised the Commonwealth Trading Bank of Australia, The Rural and Industries Bank of Western Australia (Rural Department), the Australia and New Zealand Bank Limited, The Bank of Adelaide, the Bank of New South Wales, the Banque Nationale de Paris (which commenced operations in Western Australia on 25 November 1969), The Commercial Bank of Australia Limited, The Commercial Banking Company of Sydney Limited, The English, Scottish and Australian Bank, Limited and The National Bank of Australasia Limited. With effect from 1 October 1970, the Australia and New Zealand Bank Limited and The English, Scottish and Australian Bank, Limited were incorporated to form the Australia and New Zealand Banking Group Limited.

The operations of trading banks are governed by the *Banking Act* 1959-1967 (Commonwealth) which places them under a degree of control by the central bank, the Reserve Bank of Australia.

The following table shows the averages of total amounts on deposit with the trading banks and of their outstanding advances during each of the years 1965-66 to 1969-70. The figures relate to Western Australian business only and represent the annual average

of amounts as at the close of business each Wednesday. The information is prepared from returns furnished under the requirements of the *Banking Act 1959-1967* by all trading banks except The Rural and Industries Bank of Western Australia, which supplies information by special arrangement.

TRADING BANKS—AVERAGES OF DEPOSITORS' BALANCES AND BANK ADVANCES  
(\$'000)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Depositors' balances—					
Commonwealth and State Governments—					
Fixed .....	1,959	3,126	5,527	3,356	3,627
Current—					
Bearing interest .....	1,142	2,189	3,920	1,008	10
Not bearing interest .....	1,734	1,673	1,764	1,728	1,817
Other than Commonwealth and State Governments—					
Fixed .....	117,160	130,769	141,632	162,943	236,274
Current—					
Bearing interest .....	13,875	15,466	16,849	23,042	24,887
Not bearing interest .....	174,565	202,679	229,146	270,481	291,402
Total .....	310,432	355,899	398,837	462,559	558,017
Loans, advances and bills discounted (a) .....	195,190	212,023	252,627	280,147	323,824
Ratio of loans, advances, etc. to total balances (per cent)	62.9	59.6	63.3	60.6	58.0

(a) Excludes loans to authorised dealers in the short-term money market.

In the following table, which relates to Western Australian business only, the average amount on deposit with each trading bank and the average of its outstanding advances during the month of June 1970 are shown, together with the number of branches and agencies of each bank at 30 June 1970.

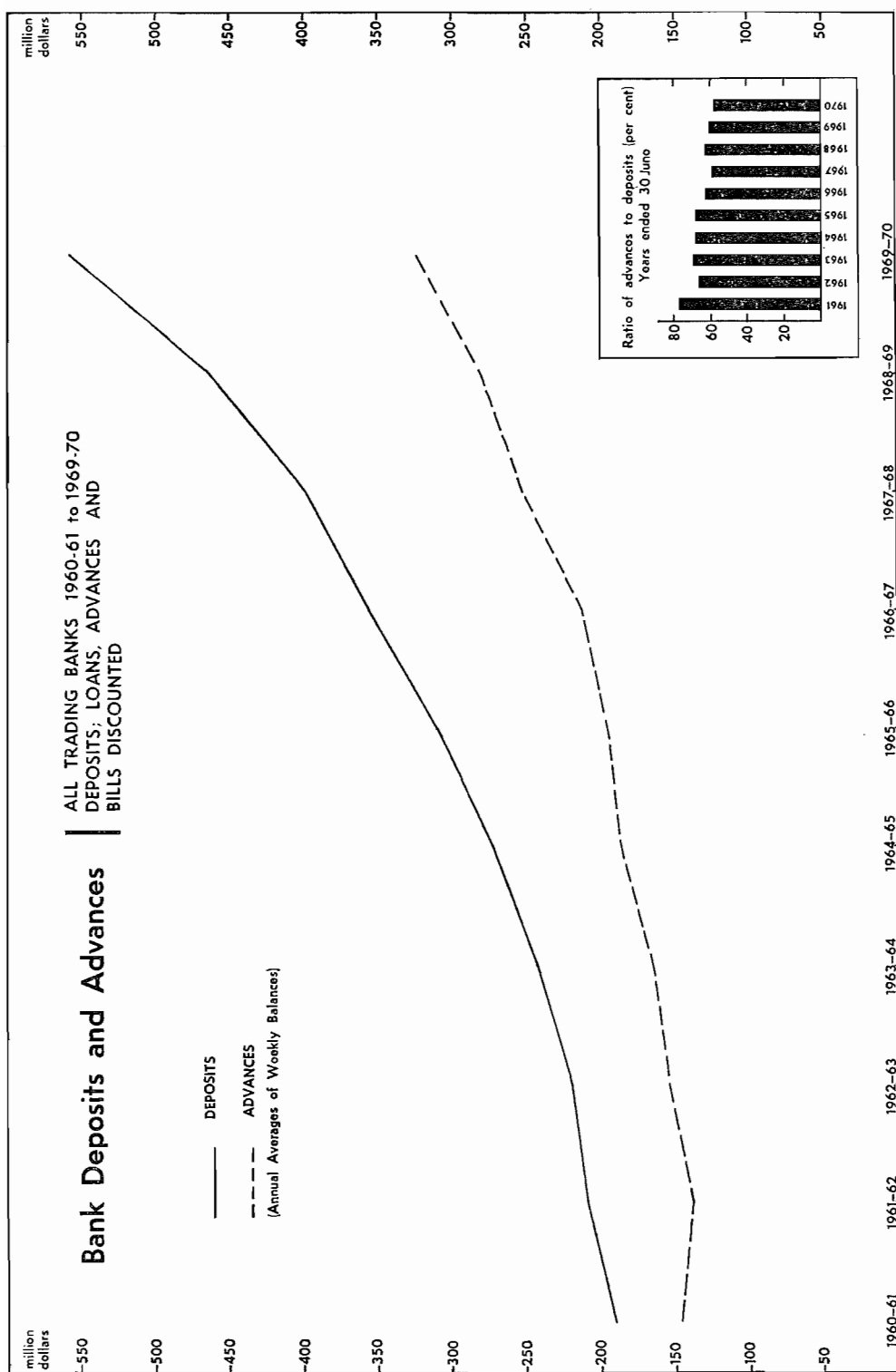
TRADING BANKS—BRANCHES, AGENCIES, DEPOSITS AND ADVANCES: JUNE 1970

Bank	Number of branches (a)	Number of agencies (a)	Depositors' balances (b)			Loans, advances, and bills discounted (b) (c)
			Not bearing interest	Bearing interest	Total	
Commonwealth Trading Bank of Australia .....	69	31	\$'000 45,148	\$'000 36,235	\$'000 81,382	\$'000 57,607
The Rural and Industries Bank of Western Australia (Rural Department) .....	57	24	29,750	41,466	71,215	66,433
Other trading banks—						
Australia and New Zealand Bank Limited .....	49	27	36,246	29,306	65,552	34,734
The Bank of Adelaide .....	2	3	3,120	8,730	11,849	2,410
Bank of New South Wales .....	104	29	77,390	64,728	142,118	85,986
Banque Nationale de Paris .....	1	....	477	2,268	2,745	601
The Commercial Bank of Australia Limited .....	37	18	18,006	17,833	35,839	22,125
The Commercial Banking Company of Sydney Limited .....	4	....	2,620	5,817	8,437	2,553
The English, Scottish and Australian Bank, Limited .....	30	1	17,264	9,965	27,228	17,395
The National Bank of Australasia Limited .....	79	33	43,615	42,654	86,269	57,886
Total, Other trading banks .....	306	111	198,738	181,299	380,037	223,690
TOTAL, ALL TRADING BANKS .....	432	166	273,635	259,000	532,634	347,729

(a) At 30 June. (b) Averages based on amounts at close of business each Wednesday.

(c) Excludes loans to authorised dealers in the short-term money market.

In July 1970 the outstanding advances of the trading banks, excluding The Rural and Industries Bank of Western Australia and the Banque Nationale de Paris, amounted in total to \$281.3 million. Business advances represented \$222.0 million, personal advances \$53.8 million, advances to non-profit organisations \$4.1 million, and to public authorities other than the Commonwealth and State Governments \$1.2 million. Business



advances were mainly for rural industry (\$89.7 million), for retail and wholesale trade (\$49.1 million) and for manufacturing (\$17.9 million). Of the personal advances, loans for the building or purchasing of homes accounted for \$20.0 million.

The following table contains particulars of the average weekly debits to customers' accounts in each year from 1965-66 to 1969-70 and in each quarter of those years. The figures represent the total of all cheques drawn by customers of all trading banks and, in addition, the Rural Credits Department of the Reserve Bank of Australia and the Commonwealth Development Bank of Australia. Debits to Commonwealth and State Government accounts at city branches are excluded as they are subject to abnormal influences. The figures are derived by averaging the debits made during weeks ended on Wednesdays during the several periods shown.

#### TRADING BANKS—AVERAGE WEEKLY DEBITS TO CUSTOMERS' ACCOUNTS (a)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
WEEKLY AVERAGE (\$ million)					
Average for quarter ended—					
September ....	107.7	123.4	146.5	182.6	227.8
December ....	124.1	138.8	168.8	210.2	254.8
March ....	130.3	144.7	177.8	221.6	246.9
June ....	128.4	147.5	183.2	221.8	255.7
Average for year ....	122.4	138.6	169.1	209.0	246.4
PER HEAD OF MEAN POPULATION (dollars)					
Average for quarter ended—					
September ....	130.1	145.0	166.5	*199.7	239.6
December ....	148.7	161.7	190.1	*227.3	265.1
March ....	154.9	167.0	*198.2	237.0	254.2
June ....	151.8	169.0	202.4	*235.3	261.5
Average for year ....	146.2	160.8	189.5	225.0	254.9

(a) Excludes debits to Commonwealth and State Government accounts at city branches; see letterpress immediately preceding table.

\* Revised.

**Bank Charges.** In October 1962 the trading banks discontinued the interstate exchange rates previously charged and instituted a system of charges on current accounts. The charges, comprising three separate elements, are calculated quarterly and debited as one composite item. In addition to a basic maintenance fee of 75c per quarter there is a ledger activity fee increasing with the number of transactions each quarter, and a collection fee on cheques deposited in excess of twenty per quarter. Rebates are allowable on ledger activity fees where credit balances are maintained at the level of \$1,000 or more throughout the quarterly period.

#### Savings Banks

At 31 December 1970, savings banks operating in Western Australia comprised the Commonwealth Savings Bank of Australia, The Rural and Industries Bank of Western Australia (Savings Bank Division), the Australia and New Zealand Savings Bank Limited, The Bank of Adelaide Savings Bank Limited, the Bank of New South Wales Savings Bank Limited, The Commercial Savings Bank of Australia Limited, the C.B.C. Savings Bank Limited and The National Bank Savings Bank Limited.

Individual depositors may not operate on their savings bank accounts by cheque, but cheque accounts are generally available to non-profit organisations such as friendly, co-operative and charitable societies. Interest is paid on deposits with savings banks

and no charge is made for the keeping of accounts. A school savings bank service is provided and its operations, except for the number of accounts open at the end of each year, are included in the figures shown in the following table.

## SAVINGS BANK TRANSACTIONS

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Deposits (a) ....	\$'000 397,581	467,401	557,289	663,653	719,324
Withdrawals (a) ....	\$'000 375,075	439,255	525,587	637,254	714,719
Excess of deposits over withdrawals ....	\$'000 22,506	28,146	31,703	26,399	4,605
Interest added to accounts ....	\$'000 8,711	9,790	11,093	12,983	14,288
Accounts open at end of year (b)....	No. 848,562	905,349	970,120	1,036,180	1,096,466
Depositors' balances at end of year—					
Total ....	\$'000 292,871	330,807	373,602	412,984	431,877
Average per operative account ....	\$ 345.4	365.5	385.1	398.6	393.9
Average per head of population ....	\$ 345.3	377.5	410.8	436.4	440.7

(a) Includes inter-branch transfers but excludes transfers from and to other States. (b) Excluding inoperative accounts (i.e. accounts of less than \$2 which have not been operated on for more than two years).

The following table, which relates to Western Australian business only, shows the number of branches and agencies of each of the savings banks at 30 June 1970. The amount of depositors' balances held by each bank at the end of June 1970 is also shown. This information, together with similar particulars for each of the other Australian States, is published monthly in the *Commonwealth of Australia Gazette*, and is prepared from returns furnished under the requirements of the *Banking Act 1959-1967* by all savings banks except The Rural and Industries Bank of Western Australia (Savings Bank Division), which supplies information by special arrangement.

SAVINGS BANKS—BRANCHES, AGENCIES AND DEPOSITS  
JUNE 1970

Bank	Number of branches (a)	Number of agencies (a)	Depositors' balances (b)
Commonwealth Savings Bank of Australia ....	92	734	\$'000 209,966
The Rural and Industries Bank of Western Australia (Savings Bank Division) ....	59	336	69,520
Other savings banks—			
Australia and New Zealand Savings Bank Limited	49	177	29,362
The Bank of Adelaide Savings Bank Limited ....	2	14	1,166
Bank of New South Wales Savings Bank Limited....	104	344	72,583
The Commercial Savings Bank of Australia Limited	37	42	10,130
C.B.C. Savings Bank Limited ....	4	9	1,122
E.S. & A. Savings Bank Limited ....	30	43	9,021
The National Bank Savings Bank Limited ....	79	74	29,007
Total, Other savings banks ....	305	703	152,391
TOTAL, ALL SAVINGS BANKS ....	456	1,773	431,877

(a) At 30 June. (b) Particulars for the Commonwealth Savings Bank and The Rural and Industries Bank of Western Australia (Savings Bank Division) relate to 30 June, and those for other savings banks to the last Wednesday in June.

In December 1969 approval was given by the Reserve Bank of Australia to a proposal for the establishment of a new type of savings bank account on which interest could be paid at rates almost 1 per cent above the general deposit rate paid at that time by most savings banks. The holder of such an account is required to give three months' notice before a withdrawal may be made. The account must also have, at all times, a minimum balance of \$500 and transactions are in minimum amounts of \$100. The maximum rate of interest payable on these 'investment' accounts at 30 June 1970 was 5 per cent per annum.

### Bank Interest Rates

The following table shows bank interest rates current at 30 June 1970, the dates from which they became operative, and the rates which were applicable prior to those dates.

BANK INTEREST RATES AT 30 JUNE 1970

Particulars	Rate per annum	Date from which operative	Previous rate per annum
	per cent		per cent
LENDING RATES			
Trading banks—			
Overdraft (general) (a) ....	8.25	1970—9 March	7.75
Unsecured personal loans (a) (b) ....	6.50	9 March	6.25
Commonwealth Development Bank of Australia—			
Rural loans (c) ....	6.25	1969—1 August	6.00
Industrial loans (c) ....	7.25	1970—6 April	6.75
Reserve Bank of Australia, Rural Credits Department—			
Government-guaranteed loans	5.00	1969—8 August	4.75
Other loans	5.25	8 August	5.00
Savings banks—			
Housing loans (a) ....	7.00	1970—1 April	6.25
Other loans (a) ....	8.25	1 April	7.75

DEPOSIT RATES (a)

Trading banks—			
Fixed deposits of less than \$50,000—			
3 months and less than 12 months ....	4.80	1970—9 March	(d) 4.50
12 months and less than 18 months ....	5.00	9 March	(d) 4.70
18 months to 24 months ....	5.30	9 March	(d) 5.00
Fixed deposits of \$50,000 and over—			
30 days to 24 months ....	5.50	1970—9 March	(e) 5.00
Certificates of deposit of \$50,000 and over—			
3 months to 24 months ....	5.50	1970—9 March	5.00
Savings banks ....	(f) 5.00	1970—1 April	(g) 3.75

(a) Maximum rate. (b) Flat rate. (c) Basic rate. (d) On deposits of less than \$100,000. (e) On deposits of \$100,000 and over. (f) In respect of ordinary accounts the maximum interest-bearing amount in any one account is \$20,000 (\$10,000 from 1 March 1967 to 30 March 1970); this limit does not apply to cheque accounts of friendly and other societies. (g) The Rural and Industries Bank of Western Australia paid 4.00 per cent. See also note (f).

### INSURANCE

#### General Insurance

General insurance is available to the public in Western Australia from a number of companies and, in some fields, from the State Government Insurance Office. There is also a Motor Vehicle Insurance Trust whose activities are confined to motor vehicle third party insurance.

During 1969-70, there were 166 companies operating in Western Australia. The majority of these were 'tariff' offices, being members of the Fire and Accident Underwriters' Association and issuing the standard policies of the Association at uniform premium rates. The remainder were 'non-tariff' companies effecting insurances at competitive rates and reinsuring direct with Lloyd's or other underwriters.

The State Government Insurance Office covers fire, marine and general insurance risks for State Government instrumentalities and semi-government and local government authorities. It also conducts some classes of insurance business for the general public, the principal transactions being workers' compensation and comprehensive motor vehicle insurance. By authority of amendments to the State Government Insurance Office Act in 1954 and 1958 the Office engages in personal accident insurance in respect of school children and students under a policy which indemnifies the parent or guardian against the cost of medical and surgical treatment and funeral and other expenses.

The following table gives details of revenue and expenditure relating to fire, marine and general insurance during each of the years from 1965-66 to 1969-70. It contains only selected items of statistics and is therefore not suitable for the construction of a



'Profit and Loss' statement or 'Revenue Account'. The amounts shown as 'Premiums' represent the full amount receivable in respect of policies issued or renewed during the year, less returns, rebates and bonuses paid or credited to policy holders during the year. They are not adjusted to provide for premiums unearned at the end of the year and consequently the amounts differ from 'earned premium income' appropriate to the year. The amounts shown as 'Claims' include provision for outstanding claims and represent claims or losses incurred during the year. Salvage and other amounts recoverable have been deducted. The transactions of The Motor Vehicle Insurance Trust are not included, but are shown in the table on page 301. The figures shown under the heading of 'Contributions to fire brigades' represent payments made to the Western Australian Fire Brigades Board for the operation and maintenance of fire brigades, as required by the Fire Brigades Act.

**FIRE, MARINE AND GENERAL INSURANCE (a)**  
(S'000)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>REVENUE</b>					
Premiums—					
Motor vehicles ....	10,277	11,852	13,530	15,697	18,073
Fire .....	6,009	6,343	7,096	7,676	8,815
Workers' compensation .....	7,136	7,908	9,046	9,609	11,138
Householders' comprehensive .....	2,286	2,562	3,107	3,935	4,995
Personal accident .....	1,425	1,820	2,167	2,555	3,105
Hailstone .....	1,479	1,545	1,489	1,479	1,065
Marine .....	1,418	1,553	1,738	2,069	2,424
Other classes .....	2,356	2,953	* 5,552	4,546	5,835
Total premiums .....	32,385	36,535	*41,724	47,566	55,449
Other (interest, dividends, rents, etc.—net) .....	1,059	1,225	1,484	1,711	1,703
Total revenue .....	33,444	37,760	*43,208	49,277	57,152
<b>EXPENDITURE</b>					
Claims—					
Motor vehicles ....	7,439	8,883	10,413	11,676	13,154
Fire .....	1,711	1,922	1,752	2,614	3,096
Workers' compensation .....	5,516	6,461	7,801	8,192	8,528
Householders' comprehensive .....	555	606	832	1,961	1,516
Personal accident .....	587	766	827	1,019	1,094
Hailstone .....	970	443	272	267	273
Marine .....	548	587	802	1,117	1,168
Other classes .....	922	1,329	* 1,518	1,923	2,397
Total claims .....	18,247	20,995	*24,218	28,769	31,228
Other—					
Management expenses ....	6,314	7,286	8,352	9,410	11,254
Commission and agents' charges .....	2,691	3,071	3,587	4,029	4,840
Taxation .....	988	841	603	792	1,109
Contributions to fire brigades .....	920	1,010	1,138	1,299	1,458
Total expenditure .....	29,160	33,203	*37,898	44,299	49,889

(a) Excludes transactions of The Motor Vehicle Insurance Trust (see table on page 301). Operations of the State Government Insurance Office are included. \* Revised.

## Life Insurance

Life insurance business throughout Australia is regulated by the *Life Insurance Act* 1945-1965 (Commonwealth), which requires companies to be registered by the Insurance Commissioner appointed under the Act and to establish statutory funds in relation to their life insurance transactions. The purpose of the Act, which supersedes State legislation, is to place life insurance business on a uniform basis throughout the Commonwealth and to afford protection to policy holders. Under a previous Commonwealth Act, the *Insurance Act* 1932-1966, the companies were required to deposit money or approved securities with the Treasurer in order to guarantee the claims of insured persons, and this provision is continued by the present Act.

At 30 June 1970, there were thirty-eight life insurance companies or societies operating in Western Australia. In terms of total sums insured, life insurance policies relate predominantly to ordinary endowment or whole-of-life insurance and superannuation, although an appreciable volume of industrial business is also undertaken.

Details of policies, sums insured and annual premiums for each class of business are given in the following table for the years 1965-66 to 1969-70.

### LIFE INSURANCE

Year	New policies issued			Policies discontinued or reduced			Policies, etc. existing at end of year		
	Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums
	Number	\$'000	\$'000	Number	\$'000	\$'000	Number	\$'000	\$'000

### ORDINARY BUSINESS

1965-66	....	....	30,028	133,568	3,016	17,514	42,407	1,023	311,613	793,594	21,310
1966-67	....	....	34,435	166,375	3,625	16,909	42,150	1,118	329,139	917,819	23,817
1967-68	....	....	37,621	203,244	4,546	17,359	49,675	1,174	349,401	1,071,388	27,189
1968-69	....	....	42,467	264,783	5,583	17,959	56,676	1,308	373,909	1,279,496	31,465
1969-70	....	....	45,621	316,911	6,470	21,120	79,092	1,823	398,410	1,517,315	36,112

### INDUSTRIAL BUSINESS

1965-66	....	....	8,846	8,261	334	13,107	4,948	223	169,643	55,018	2,303
1966-67	....	....	10,899	10,614	435	13,041	4,979	220	167,501	60,653	2,518
1967-68	....	....	11,168	11,815	479	10,553	5,766	248	168,116	66,702	2,750
1968-69	....	....	11,266	12,650	521	10,742	6,765	288	168,640	72,587	2,984
1969-70	....	....	10,435	13,004	538	11,160	7,222	304	167,915	78,368	3,218

### SUPERANNUATION BUSINESS

1965-66	....	....	5,213	33,286	950	4,060	15,201	423	36,231	143,028	4,810
1966-67	....	....	5,910	40,368	1,475	4,690	19,406	519	37,451	163,990	5,766
1967-68	....	....	5,978	46,868	1,462	3,941	16,778	568	39,488	194,080	6,659
1968-69	....	....	6,212	61,713	2,069	4,813	19,904	577	40,887	235,889	8,151
1969-70	....	....	6,513	71,024	2,210	4,311	33,558	1,281	43,089	273,355	9,079

### ORDINARY, INDUSTRIAL AND SUPERANNUATION BUSINESS

1965-66	....	....	44,087	175,114	4,300	34,681	62,556	1,670	517,487	991,640	28,422
1966-67	....	....	51,244	217,357	5,536	34,640	66,535	1,857	534,091	1,142,462	32,101
1967-68	....	....	54,767	261,927	6,487	31,853	72,220	1,990	557,005	1,332,170	36,598
1968-69	....	....	59,945	339,147	8,173	33,514	83,345	2,172	583,436	1,587,972	42,600
1969-70	....	....	62,569	400,938	9,218	36,591	119,872	3,409	609,414	1,869,038	48,409

### Motor Vehicle Third Party Insurance

Third party insurance in connection with motor vehicle accidents became compulsory on 1 July 1944 under the provisions of the Motor Vehicle (Third Party Insurance) Act of 1943. The Motor Vehicle Insurance Trust was established by an amendment to the Act in 1948 and comprises the general manager of the State Government Insurance Office, three members nominated by the Fire and Accident Underwriters' Association of Western Australia, and one nominee of those participating approved insuring organisations which are not members of the Association.

The Trust administers a Motor Vehicle Insurance Fund in which approved insurers participate. Premiums received from motor vehicle third party insurance and revenue from other sources constitute annual 'pools' and, after payment of claims and other expenses appropriate to each pool, the resulting profit or loss is shared by the participating insurers, which include the State Government Insurance Office. These shares cannot be finally determined until the last claim is paid and it is usually several years before a

pool has satisfied all the claims attributable to it. For this reason, the figures given in the following table are subject to progressive revision as the business of each pool approaches finality.

**THE MOTOR VEHICLE INSURANCE TRUST**  
(S'000)

Revenue and expenditure	Pool (a) for the year—				
	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Revenue—</b>					
Premiums .....	5,180	6,795	6,173	9,297	(b) 16,486
Interest received .....	671	841	694	742	445
<b>Total revenue .....</b>	<b>5,852</b>	<b>7,636</b>	<b>6,867</b>	<b>10,039</b>	<b>(b) 16,931</b>
<b>Expenditure</b>					
Claims (c) .....	5,052	7,165	5,981	9,753	(d) 14,953
Commission .....	31	33	48	51	64
Management expenses .....	100	126	192	241	289
Taxation .....	5	12	18	17	20
<b>Total expenditure .....</b>	<b>5,189</b>	<b>7,337</b>	<b>6,239</b>	<b>10,061</b>	<b>(d) 15,325</b>

(a) See accompanying letterpress *Motor Vehicle Third Party Insurance*. Figures are revised to 30 June 1970. (b) Includes unearned premiums estimated at \$3.92 million. (c) Includes estimate for claims outstanding. (d) Includes estimate of \$3.83 million for claims not notified.

### Health Insurance Organisations

Voluntary health insurance is offered by a number of organisations which provide one or more types of benefit covering such items as hospital and medical fees, funeral expenses and sick pay to or on behalf of contributing members and their dependants. They include societies registered under the *Friendly Societies Act, 1894-1964* and other organisations registered under the *National Health Act 1953-1970* (Commonwealth).

Benefits are available in a wide range to meet the cost, either wholly or in part, of such services as treatment by a general or specialist medical practitioner (including surgical operations and obstetrical attention), X-ray, cardiographic and pathological examinations, physiotherapy, dental treatment, hospital care, home nursing and ambulance transport. In many cases, the Commonwealth Government pays a benefit additional to that received from the organisation. Reference to these additional benefits is made in Chapter V—*Social Conditions*. Members of friendly societies may contribute also for the supply of medicines and some societies maintain endowment assurance funds and supplementary death benefit funds.

The following tables give details, for the years 1965-66 to 1969-70, of the membership and the financial activities of friendly societies registered under the Friendly Societies Act. 'Benefit' members are those who contribute to the Sick and Funeral Fund of a society and 'honorary' members are principally those who pay only for medical and hospital benefits.

**FRIENDLY SOCIETIES—NUMBER, MEMBERS AND SICKNESS BENEFITS**

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Registered societies .....	11	11	11	11	11
Branches .....	253	249	249	248	246
Members at end of year—					
Benefit members .....	16,316	15,964	15,715	15,465	15,175
Honorary members .....	33,857	35,064	34,909	37,658	38,648
Sickness benefits—					
Number of members paid .....	2,550	2,451	2,322	2,179	2,158
Number of weeks of sick pay .....	57,370	54,808	54,623	51,857	50,580

### FRIENDLY SOCIETIES—REVENUE AND EXPENDITURE (\$'000)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Revenue—</b>					
Fees, contributions and levies ....	1,637	1,915	2,251	2,587	2,756
Interest and rent ....	136	148	166	153	178
Other ....	56	211	98	141	73
<b>Total revenue ....</b>	<b>1,829</b>	<b>2,274</b>	<b>2,515</b>	<b>2,881</b>	<b>3,008</b>
<b>Expenditure—</b>					
Sick pay....	45	42	41	38	39
Medical attendance and medicine ....	1,428	1,632	1,925	2,337	2,521
Death benefits ....	42	43	45	51	44
Administration ....	137	162	178	194	202
Other ....	156	124	104	144	134
<b>Total expenditure ....</b>	<b>1,807</b>	<b>2,002</b>	<b>2,293</b>	<b>2,764</b>	<b>2,940</b>
<b>Balance of funds at end of year ....</b>	<b>3,411</b>	<b>3,682</b>	<b>3,910</b>	<b>4,027</b>	<b>4,095</b>

### REGISTERED BUILDING SOCIETIES

Building societies in Western Australia are registered under the provisions of the *Building Societies Act, 1920-1970* primarily for the purpose of raising funds to assist members by granting loans, secured on mortgage, to build or acquire homes. They also provide a means of investment for shareholder members, trustee funds and other depositors. The funds of the societies may be in the form of payment for fully-paid shares, subscriptions for contributing shares, money placed on deposit, or negotiated loans. Another important source of revenue became available to the societies in 1956-57 when, under the *Housing Agreement Act 1956* (Commonwealth), it was provided that moneys should be allocated to approved institutions from Commonwealth funds advanced to the States in terms of the Commonwealth and States Housing Agreement. A requirement of the Act was that these institutions should receive not less than 30 per cent of total advances made to the State during each of the financial years 1958-59 to 1960-61, and this provision has been continued by later Acts. The present legislation, the *Housing Agreement Act 1966*, provides for its extension to the year ending 30 June 1971.

### REGISTERED BUILDING SOCIETIES

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Societies on register at 30 June ....</b>	<b>144</b>	<b>192</b>	<b>234</b>	<b>282</b>	<b>319</b>
Shareholders ....	36,897	38,273	47,530	56,556	92,152
Borrowers ....	12,280	13,708	16,893	20,885	27,513
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans granted ....	12,611	14,031	24,436	48,650	91,481
Working expenses (a) ....	1,501	1,824	2,438	3,355	4,479
<b>Liabilities—</b>					
Investing members' funds ....	19,063	22,231	27,427	36,607	112,407
Borrowing members' funds ....	1,289	1,674	2,024	2,122	2,187
Deposits ....	9,343	10,944	17,613	42,122	49,700
Loans due to—Government ....	16,386	19,231	22,027	25,565	28,058
Other ....	10,029	12,779	17,547	26,127	27,403
Other liabilities (b) ....	508	723	936	1,141	2,361
<b>Total liabilities ....</b>	<b>56,618</b>	<b>67,582</b>	<b>87,575</b>	<b>133,686</b>	<b>222,116</b>
<b>Assets—</b>					
Advances on mortgages (b) ....	53,472	62,689	79,278	115,933	191,669
Other assets ....	3,146	4,893	8,297	17,752	30,446
<b>Total assets ....</b>	<b>56,618</b>	<b>67,582</b>	<b>87,575</b>	<b>133,686</b>	<b>222,116</b>

(a) Includes administration expenses and interest on borrowed funds but not interest on investing members' funds, borrowing members' funds, or deposits. (b) Excludes loans in process and advances approved but not yet paid.

The Building Societies Act provides for the constitution of a Building Societies Advisory Committee of five members, comprising the Registrar of Building Societies as chairman, the President of the State branch of the Commonwealth Institute of Valuers, two persons who are qualified and experienced in building society management and practice, and an officer of the State Public Service nominated by the Minister.

The functions of the Committee, as set out in the Act, are to make recommendations and submit proposals to the Minister with respect to regulations and model rules to be made under the Act; any action to be taken for promoting, encouraging and assisting in the formation of societies; improving the methods of operation of societies; charges which societies may make on and require to be paid by their members, other than share subscriptions and repayment of advances; the financing of societies in their operations and the protecting of the finances of societies; promoting the building of dwelling-houses by co-operative effort; determining and specifying the minimum standards of construction of dwelling-houses and other buildings to be accepted before advances can be made; and such other matters as the Minister refers to the Committee from time to time, or as may be prescribed.

### INSTALMENT CREDIT FOR RETAIL SALES

The statistics in the following tables cover all types of instalment credit schemes which relate primarily to the financing of retail sales of goods in which repayment is made by regular predetermined instalments. Types of schemes covered include hire purchase, time payment, budget account and personal loans which relate primarily to the financing of retail sales of goods. In these statistics the term 'retail sales' relates not only to retail sales by retail establishments coming within the scope of the Censuses of Retail Establishments conducted periodically by the Commonwealth Statistician, Canberra (see Chapter IX, Part 2), but includes also other sales of goods to final purchasers (e.g. plant and machinery).

In the next two tables, two major classifications of instalment credit statistics are adopted: type of credit and type of business.

The term 'retail businesses' in the latter category relates to retailers who provide their own finance, and also to subsidiary finance businesses set up by retailers (or by groups engaged mainly in retail trading), primarily for the purpose of financing their retail sales. All other businesses engaged in instalment credit financing of retail sales, irrespective of whether their main activity is finance, constitute 'non-retail finance businesses'.

More detailed information regarding classifications used in the following tables may be found in the annual bulletin *Insurance and Other Private Finance* and in monthly and quarterly statements relating to instalment credit for retail sales issued by the Commonwealth Statistician, Canberra.

Details of the balances outstanding at 30 June 1966 to 1970, according to type of credit and type of business, are given in the following table.

INSTALMENT CREDIT FOR RETAIL SALES—BALANCES OUTSTANDING (a)  
(\$ million)

At 30 June—	Type of credit		Type of business		Total
	Hire purchase	Other instalment credit	Retail (b)	Non-retail finance	
1966	98.7	16.8	25.9	89.6	115.5
1967	101.1	25.6	25.4	101.3	126.7
1968	119.8	32.7	26.8	125.8	152.6
1969	*132.9	38.0	*27.6	*143.3	*170.9
1970	146.7	40.7	24.7	162.6	187.4

(a) Includes hiring charges, interest and insurance.  
primarily for financing their retail sales.

\* Revised.

(b) Includes subsidiary finance businesses set up by retailers pri-

The following table shows for broad commodity groups the amount financed according to type of credit and type of business during the period 1965-66 to 1969-70.

INSTALMENT CREDIT FOR RETAIL SALES—AMOUNT FINANCED (a)  
(\$ million)

Year	Type of credit		Type of business		
	Hire purchase	Other instalment credit	Retail (b)	Non-retail finance	Total
<b>MOTOR VEHICLES, TRACTORS, ETC.</b>					
1965-66	45.9	5.6	4.9	46.6	51.5
1966-67	48.7	11.5	5.0	55.2	60.2
1967-68	55.6	19.1	5.2	69.4	74.7
1968-69	60.2	21.7	6.2	75.7	81.9
1969-70	73.2	20.2	5.1	88.3	93.4
<b>PLANT AND MACHINERY</b>					
1965-66	10.5	0.8	0.9	10.4	11.3
1966-67	11.4	2.8	1.8	12.4	14.2
1967-68	13.8	4.1	1.9	16.0	17.9
1968-69	12.6	4.7	2.0	15.3	17.3
1969-70	11.4	5.2	1.0	15.5	16.6
<b>HOUSEHOLD AND PERSONAL GOODS</b>					
1965-66	10.7	9.6	15.3	5.0	20.3
1966-67	11.4	11.5	16.8	6.1	22.9
1967-68	13.3	11.8	17.9	7.1	25.1
1968-69	14.0	11.4	18.7	6.7	25.4
1969-70	15.1	11.0	19.0	7.1	26.1
<b>TOTAL</b>					
1965-66	67.1	15.9	21.0	62.0	83.1
1966-67	71.5	25.8	23.6	73.7	97.3
1967-68	82.7	34.9	25.1	92.5	117.6
1968-69	86.8	37.8	26.9	97.7	124.6
1969-70	99.7	36.3	25.1	110.8	136.0

(a) Excludes hiring charges, interest and insurance, primarily for financing their retail sales.

(b) Includes subsidiary finance businesses set up by retailers pri-

## FINANCE COMPANIES

Information relating to the lending operations of finance companies in Western Australia is given in the following tables. A comprehensive account of the scope of the statistics, definitions, and more complete details of the transactions of finance companies are given in the annual bulletin *Finance Companies* and the monthly statement *Finance Companies*, published by the Commonwealth Statistician, Canberra.

For the purpose of these statistics, finance companies are defined as companies which are engaged mainly in providing to the general public (businesses as well as persons in their private capacity) credit facilities of the following types: hire purchase and other instalment credit for retail sales; wholesale hire purchase; other consumer and commercial loans; and factoring. The finance companies covered in these statistics, in so far as they provide credit for retail sales, are also included in the statistics shown in the preceding section *Instalment Credit for Retail Sales*.

**Amount Financed.** The following table shows the amount financed, according to type of agreement, i.e. instalment credit for retail sales, wholesale hire purchase, personal loans, mortgage loans, commercial loans and factoring, in Western Australia for the years 1965-66 to 1969-70.

**FINANCE COMPANIES—AMOUNT FINANCED : TYPE OF AGREEMENT**  
(\$ million)

Year	Instalment credit for retail sales	Wholesale hire purchase	Personal loans	Mortgage loans	Commercial loans and factoring	Total
1965-66	52.3	35.9	3.3	17.0	4.1	112.7
1966-67	62.2	61.7	3.4	29.4	6.3	163.0
1967-68	78.2	73.8	3.7	51.7	7.4	214.7
1968-69	*83.0	81.9	5.9	*93.2	11.6	*275.6
1969-70	95.5	90.5	5.8	91.1	14.5	297.5

\* Revised.

**Collections and other Liquidations of Balances.** The following table shows the collections and other liquidations of balances, according to type of agreement, *i.e.* instalment credit for retail sales, wholesale hire purchases, and other consumer and commercial loans and factoring, made by finance companies in Western Australia for the years 1965-66 to 1969-70.

**FINANCE COMPANIES—COLLECTIONS AND OTHER LIQUIDATIONS OF BALANCES**  
(\$ million)

Year	Contracts including charges			Contracts excluding charges			Total, all contracts
	Instalment credit for retail sales	Other consumer and commercial loans	Total	Wholesale hire purchase	Other consumer and commercial loans and factoring	Total	
1965-66	58.8	17.9	76.8	34.7	6.4	41.1	117.9
1966-67	67.9	25.0	92.9	59.7	9.3	68.9	161.8
1967-68	79.3	33.4	112.7	71.0	14.9	85.9	198.6
1968-69	90.3	53.1	143.5	80.9	33.6	*114.6	258.0
1969-70	104.0	60.8	164.8	87.8	44.6	132.4	297.2

\* Revised.

**Balances Outstanding.** The following table shows the balances outstanding in Western Australia, according to type of agreement, and the total balances outstanding at the end of each year from 1965-66 to 1969-70.

**FINANCE COMPANIES—BALANCES OUTSTANDING : TYPE OF AGREEMENT**  
(\$ million)

End of year—	Contracts including charges			Contracts excluding charges			Total, all contracts
	Instalment credit for retail sales	Other consumer and commercial loans	Total	Wholesale hire purchase	Other consumer and commercial loans and factoring	Total	
1965-66	76.2	33.2	109.4	5.0	9.9	14.9	124.3
1966-67	86.6	44.4	130.9	7.3	15.2	22.5	153.4
1967-68	106.6	64.9	171.5	10.5	26.7	37.2	208.6
1968-69	122.1	*95.9	*218.0	12.2	*46.2	*58.3	*276.4
1969-70	139.9	100.4	240.3	16.1	74.5	90.7	331.0

\* Revised.

**Business Equipment and Plant on Lease.** The following table shows the initial capital cost of business equipment and plant on lease and the balances outstanding in Western Australia at the end of each year from 1965-66 to 1969-70.

**FINANCE COMPANIES—BUSINESS EQUIPMENT  
AND PLANT ON LEASE**  
(\$ million)

Year	Initial capital cost of goods newly leased during year	Balances outstanding at end of year
1965-66 ....	(a)	3.9
1966-67 ....	3.7	6.0
1967-68 ....	9.7	11.8
1968-69 ....	11.2	*17.9
1969-70 ....	16.9	27.3

(a) Not available.

\* Revised.

**Instalment Credit for Retail Sales.** The following table shows additional details, for Western Australia, of the total instalment credit for retail sales transactions of finance companies. Amount financed is dissected by type of commodity, and collections and other liquidations of balances are divided into cash collections and other liquidations.

**FINANCE COMPANIES—INSTALMENT CREDIT FOR RETAIL SALES**  
(\$ million)

Year	Amount financed during year					Collections and other liquidations during year			Balances outstanding at end of year
	New motor vehicles, tractors, etc.	Used motor vehicles, tractors, etc.	Plant and machinery	Household and personal goods	Total	Cash collections	Other liquidations	Total	
1965-66 ....	20.0	21.0	7.7	3.6	52.3	57.3	1.5	58.8	76.2
1966-67 ....	24.3	23.9	9.1	4.8	62.2	65.3	2.6	67.9	86.6
1967-68 ....	31.9	29.9	10.8	5.6	78.2	76.3	2.9	79.3	106.6
1968-69 ....	33.8	34.2	10.4	4.6	*83.0	86.1	4.2	90.3	122.1
1969-70 ....	36.1	42.9	11.8	4.7	95.5	98.9	5.1	104.0	139.9

\* Revised.

## BANKRUPTCY

Under the provisions of the *Bankruptcy Act* 1966-1970 (Commonwealth), which is administered by the Attorney-General, the State of Western Australia is a proclaimed Bankruptcy District and the Supreme Court of Western Australia has federal jurisdiction in bankruptcy matters. There is a Registrar in Bankruptcy whose duties include the holding of public sittings for the examination of bankrupts, the examination of witnesses, the issuing of bankruptcy notices and creditors' petitions, and such other duties as are specified in the Act or delegated to him by the Court. Another bankruptcy officer is the Official Receiver, who acts under the general authority and direction of the Court and whose duties relate to the conduct of the debtor and to the realisation and administration of his estate.

An order for the sequestration of an estate may result from a petition by either the debtor or the creditors. In cases where it appears certain that the assets of a deceased estate will be insufficient to meet the debts, the executor or a creditor may petition to have the estate administered in bankruptcy.

Compositions, deeds of assignment and deeds of arrangement are provided for in the Act. A debtor may call a meeting of his creditors and either compound with them to pay a certain sum in the \$ as full settlement of his debts or enter into a deed of arrangement allowing him a specified time in which to pay. On the other hand, his creditors may require him to execute a deed of assignment, by which control of his affairs passes to a trustee registered under the Act, or to file a petition in bankruptcy.



The following table relates to bankruptcy proceedings during each of the years from 1965-66 to 1969-70.

## BANKRUPTCY PROCEEDINGS

Year	Sequestration orders (a)				Compositions and assignments without sequestration (b)		
	On petition of—		Assets (\$'000)	Liabilities (\$'000)	Number	Assets (\$'000)	Liabilities (\$'000)
	Creditors	Debtors (c)					
1965-66	10	187	187	755	80	2,283	2,476
1966-67	12	183	303	898	82	632	850
1967-68	4	218	230	1,013	52	745	941
1968-69	18	206	495	1,081	60	896	1,100
1969-70	11	218	847	1,924	64	1,098	1,421

(a) Includes orders for administration of deceased debtors' estates, petitions by legal personal representatives of deceased estates.

(b) Includes deeds of arrangement.

(c) Includes

## PUBLIC TRUST OFFICE

The *Public Trustee Act, 1941-1968* establishes the Public Trust Office administered by the Public Trustee.

The principal functions of the Public Trustee are the administration of the estates of deceased persons, including intestate estates; the management of the affairs of certain persons rendered incapable by mental illness or other infirmity; and the receipt of moneys under the control or order of the Supreme Court of Western Australia, to be invested and used for the maintenance, education or other benefit of the persons entitled thereto. The Public Trustee receives from the Workers' Compensation Board funds to be held in trust for investment and to be paid out at the direction of the Board. He may also act in the capacity of agent in cases where a person previously incapable of managing his affairs recovers from the incapacity and requests the Public Trustee to continue his trusteeship.

## PUBLIC TRUST OFFICE

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Matters accepted for administration—					
Estates of—					
Deceased persons	1,110	1,255	1,287	1,283	1,354
Mentally incapable persons	282	549	471	477	414
Infirm persons	....	....	....	10	21
Uncared-for property	....	....	....	1	....
Court trusts	129	111	145	175	230
Workers' compensation	82	131	99	125	96
Agencies	31	42	79	25	28
Total	1,634	2,088	2,081	2,096	2,143
Matters on hand at 30 June	4,869	5,145	5,349	5,604	6,069
Value of transactions—	\$'000	\$'000	\$'000	\$'000	\$'000
Trust moneys received	5,063	6,438	7,356	8,157	9,522
Trust moneys paid	4,628	5,420	6,303	7,201	8,601
Unclaimed moneys paid to Consolidated Revenue Fund	67	39	45	49	18
Value of estates and other matters on hand at 30 June	16,697	19,367	24,185	29,539	30,282

## OFFICE OF TITLES

The Office of Titles is established under the provisions of the *Transfer of Land Act, 1893-1969*. The Act provides for the appointment of a Commissioner of Titles and a Registrar of Titles. The principal functions of the Office are the registration and recording of all instruments and dealings affecting privately-owned land or land alienated from the Crown, the certification and issue of titles to land, and the maintenance of a register of legal ownership.

The number of documents accepted for registration during the year ended 30 June 1970 was 121,644, a decrease of almost 9 per cent from the number in 1968-69.

## OFFICE OF TITLES

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of registrations—					
Certificates of title—					
Crown Grant	1,352	1,648	2,226	1,924	2,731
Other	12,554	14,823	16,524	20,939	19,363
Leases—					
Crown	815	792	678	508	363
Other	45	67	30	10	18
Transfers	28,529	35,170	39,240	44,928	38,015
Mortgages	22,320	27,877	31,445	38,031	33,970
Discharges of mortgages	17,664	21,535	23,486	29,481	27,075
Caveats lodged	4,899	4,418	4,693	5,442	5,778
Amount of consideration—	\$'000	\$'000	\$'000	\$'000	\$'000
Transfers	184,985	254,610	336,504	494,271	482,253
Mortgages	140,117	184,278	244,349	370,314	398,059
Fees collected	336	401	449	870	866
Expenditure	424	487	529	617	796
Assurance Fund—					
Amount of credit at 30 June	193	204	217	231	246

## COMPANIES REGISTRATION OFFICE

The Registrar of Companies is responsible, subject to the Minister, for the administration of the *Companies Act, 1961-1970*, the *Business Names Act, 1962*, the *Associations Incorporation Act, 1895-1969* and the *Bills of Sale Act, 1899-1966*.

The following table gives a summary of operations under these Acts during the five-year period ended 31 December 1969.

## COMPANIES REGISTRATION OFFICE

Particulars	1965	1966	1967	1968	1969
Number of registrations effected—					
Local companies (a)	547	665	911	1,631	2,176
Foreign companies (b)	238	225	228	315	422
Business names	9,929	10,798	12,724	13,528	15,119
Associations	77	65	72	79	111
Bills of sale and liens—					
Registrations	51,518	56,835	57,120	44,674	48,287
Satisfactions entered	759	676	647	561	638
Nominal capital of local companies registered during year	\$'000 123,534	\$'000 42,372	\$'000 77,045	\$'000 87,480	\$'000 195,145
Amounts of bills of sale and liens—					
Registrations	86,672	166,571	165,172	138,603	141,496
Satisfactions entered	6,903	7,536	4,324	2,994	5,822
Fees collected (c)	434	397	436	508	704

(a) Companies incorporated in Western Australia. (b) A company incorporated outside Western Australia is required to register as a 'foreign' company if carrying on business in Western Australia. (c) Year ended 30 June.

## THE STOCK EXCHANGE OF PERTH

The Stock Exchange of Perth commenced operations in 1889, and conducted business at a number of locations before moving in December 1968 to its present quarters at Exchange House. These premises were designed and constructed to provide adequate space for total post trading, which was introduced in July 1967 replacing the call system in which brokers made bids from their desks as stocks were called by a member of the Exchange staff.

At 30 June 1970 there were thirty-three members of The Stock Exchange of Perth, and the number of companies registered on its official list was 384. Corresponding figures at 31 October 1969 were thirty and 335.

The following table gives details of turnover during the years 1966-67 to 1969-70. A revised system of sales recording was introduced in 1965-66, and comparable figures for earlier years are not available.

THE STOCK EXCHANGE OF PERTH—TURNOVER OF STOCKS AND SHARES  
(Figures supplied by The Stock Exchange of Perth)

Particulars	Year ended 31 October—			Year ended 30 June
	1967	1968	1969	1970 (a)
NUMBER OF SHARES TRADED				
	'000	'000	'000	'000
Industrial...	13,330	14,960	16,460	13,058
Mining—				
Oil	13,109	15,016	33,465	22,426
Other				
Total	26,439	50,016	83,709	133,139
VALUE OF TURNOVER				
	\$'000	\$'000	\$'000	\$'000
Shares—				
Industrial	n.a.	31,410	35,613	17,573
Mining—				
Oil	n.a.	13,918	11,087	5,936
Other	n.a.	48,987	50,729	68,109
Total	n.a.	94,315	97,429	91,617
Commonwealth and semi-government loans	3,912	445	583	364
Debentures, unsecured notes, etc.	255	138	233	37
Total	4,167	583	816	401
Total value of turnover	n.a.	94,898	98,245	92,018

(a) Eight months ended 30 June.

n.a. denotes 'not available'.

LOTTERIES AND BETTING

Lotteries

The Lotteries Commission was established under the provisions of the *Lotteries (Control) Act, 1932*. The legislation currently in force is the *Lotteries (Control) Act, 1954-1970*. The Commission, as constituted by the Act, consists of four members appointed by the Minister. The principal functions of the Commission are to conduct lotteries in Western Australia to raise money for charitable purposes, and to control lotteries conducted by other persons.

The Act requires that all prizes distributed in lotteries conducted by the Commission shall be cash prizes. It is further provided that the total expenses of conducting lotteries in any year, including commission payable on ticket sales and the remuneration of members of the Commission, shall not exceed 25 per cent of the gross amount received from the sale of tickets.

The Commission is required to pay 20 per cent of all moneys received in respect of lotteries which it conducts into a special account kept at the Treasury in terms of the *Hospital Fund Act, 1930-1937*. Moneys remaining to the credit of the Commission after meeting all outgoings authorised by the Act may, with the consent of the Minister, be applied to any approved charitable purpose or in the purchase, improvement or maintenance of lands and buildings for the purposes of the Act.

The following tables show the number of lotteries conducted by the Commission during the five-year period ended 30 June 1970, the number of tickets sold, the receipts from ticket sales, and the financial transactions of the Commission.

# LOTTERIES COMMISSION—NUMBER OF CONSULTATIONS AND TICKET SALES

Year	Type of lottery							Total
	\$5	\$4	\$3	\$2	\$1	50c	25c	
NUMBER OF CONSULTATIONS								
1965-66	1	....	1	1	2	14	85	104
1966-67	2	....	....	3	3	16	83	107
1967-68	1	....	1	....	6	16	86	110
1968-69	....	2	2	....	8	26	72	110
1969-70	1	....	9	2	8	72	....	92

NUMBER OF TICKETS SOLD ('000)								
1965-66	100	....	100	100	200	1,400	8,500	10,400
1966-67	200	....	....	300	300	1,600	8,300	10,700
1967-68	100	....	100	....	600	1,600	8,600	11,000
1968-69	....	200	150	....	800	2,600	7,200	10,949
1969-70	50	....	450	100	800	7,200	....	8,600

RECEIPTS FROM TICKET SALES (\$'000)								
1965-66	500	....	300	200	200	700	2,125	4,025
1966-67	1,000	....	....	600	300	800	2,075	4,775
1967-68	500	....	300	....	600	800	2,150	4,350
1968-69	....	800	450	....	800	1,300	1,800	5,150
1969-70	250	....	1,350	200	800	3,600	....	6,200

## LOTTERIES COMMISSION—FINANCIAL TRANSACTIONS (\$'000)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
GENERAL ACCOUNT					
Receipts from ticket sales	4,025	4,775	4,350	5,150	6,200
Expenses—					
Prize money	2,339	2,803	2,493	3,001	3,757
Commission on ticket sales	338	391	367	421	479
Salaries and superannuation	91	104	97	98	108
Printing, stationery and equipment	84	39	29	37	36
Other	27	121	128	155	177
Total	2,879	3,458	3,114	3,713	4,557
Surplus available for distribution	1,146	1,317	1,236	1,437	1,643

ACCUMULATED FUNDS ACCOUNT					
Balance at beginning of year	220	233	238	236	243
Surplus available for distribution	1,146	1,317	1,236	1,437	1,643
Unclaimed prizes	50	62	66	78	118
Rent and interest received	52	40	44	31	36
Other	5	25	10	9	83
Total	1,473	1,678	1,594	1,791	2,123
Grants approved	1,228	1,429	1,344	1,539	1,835
Prizes paid	10	5	8	6	6
Other	3	6	7	3	6
Total	1,240	1,440	1,359	1,548	1,847
Balance at end of year	233	238	236	243	276

AMOUNT OF GRANTS PAID					
Hospitals and medical and health services	652	776	984	1,298	1,089
Homes, orphanages and mission centres	363	293	352	293	169
Infant health services	17	18	23	16	2
Other charitable organisations	304	399	251	188	212
Total	1,336	1,485	1,611	1,795	1,472

# Betting

The *Betting Control Act, 1954-1970* and the *Totalisator Agency Board Betting Act, 1960-1970* provide for the regulation and control of betting and bookmaking on horse racing in Western Australia.

The Betting Control Act authorises the Totalisator Agency Board to issue licences enabling the holder to carry on the business of bookmaking on a race-course or at registered premises, and betting by or with a person not so licensed is unlawful.

The Totalisator Agency Board Betting Act gives the Totalisator Agency Board authority to regulate and control off-course betting on totalisators through the Board and betting with the Board. The Board consists of seven members appointed by the Governor, and comprises a chairman nominated by the Minister, three persons nominated by The Western Australian Turf Club, and three persons nominated by the Western Australian Trotting Association.

The application of the Act is confined to areas declared by proclamation to be 'totalisator agency regions'. The first agency established by the Board was opened on 18 March 1961. At 31 July 1970 there were 164 agencies in operation.

The Board derives its principal revenues from commission on bets and from a duty of  $1\frac{1}{2}$  per cent on the gross takings of every totalisator, as provided by the *Totalisator Duty Act, 1905-1970*. The Board may also borrow money, subject to the approval of the Treasurer. It is required that the balance of the Board's funds, after meeting all taxes, expenses and allocations, shall be paid in specified proportions to The Western Australian Turf Club and the Western Australian Trotting Association.

Details of taxes, licence fees and duties payable in connection with horse racing are shown on pages 273-4 and the amounts collected during the five-year period ended 30 June 1969 appear in the table *Net Collections of State Taxation* on page 277.

The following table shows the amounts invested on totalisators on race-courses and through agencies of the Totalisator Agency Board, and amounts invested with licensed bookmakers, during the five-year period ended 30 June 1970.

## TOTALISATOR INVESTMENTS AND INVESTMENTS WITH LICENSED BOOKMAKERS

Type of investment	1965-66	1966-67	1967-68	1968-69	1969-70
	\$'000	\$'000	\$'000	\$'000	\$'000
Totalisator investments—					
On course .....	5,832	6,454	7,342	8,708	10,920
Off course (a) .....	36,736	36,624	38,838	44,229	49,993
Total .....	42,568	43,077	46,180	52,938	60,913
Investments with licensed bookmakers—					
On course .....	20,027	24,442	27,048	31,836	38,625
Off course .....	664	375	284	353	347
Total .....	20,691	24,817	27,332	32,189	38,972
All investments—					
On course .....	25,859	30,895	34,391	40,544	49,545
Off course .....	37,400	36,999	39,121	44,582	50,339
Total .....	63,259	67,894	73,512	85,126	99,884
Per head of mean population .....	\$ 76	\$ 79	\$ 82	\$ 92	\$ 103

(a) Investments made through agencies of the Totalisator Agency Board.

## CHAPTER VII

### LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE

#### Part 1—Land Tenure and Settlement

An outline of the origin and development of the land tenure system in Western Australia from the early years of settlement is given in Chapter VII of the *Official Year Book of Western Australia*, Nos. 1 and 2 (New Series).

The growth of land settlement in relation to particular agricultural and pastoral activities is dealt with in the relevant sections of Chapter VIII and in the *Statistical Summary from 1829* appearing after Chapter X.

#### LEGISLATION AND ADMINISTRATION

By the Land Act of 1898, earlier legislation relating to the sale, occupation and management of Crown lands was consolidated and amended. Under a series of Agricultural Lands Purchase Acts which were passed between 1896 and 1904 and consolidated by the *Agricultural Lands Purchase Act, 1909*, provision was made for the repurchase by the Crown of land suitable for closer settlement. The principal criteria applied in the purchase of such land were suitability for wheat or mixed farming and proximity to transport, especially the railways.

The operation of subsequent legislation has not greatly changed the pattern of land development which was created by the *Land Act, 1898* and the *Agricultural Lands Purchase Act, 1909*. The *Land Act, 1933-1969* is now the basic statute controlling the leasing and disposal of Crown land. Closer settlement legislation relates predominantly to schemes for the benefit of returned war-service personnel. Crown land is also leased under the *Mining Act, 1904-1970*, the *Petroleum Act, 1967* and the *Forests Act, 1918-1969*, but no alienations are made under these Acts. In most freehold or leasehold titles of a residential, agricultural or pastoral nature the mineral rights, petroleum rights and, in many instances, the timber rights are reserved to the Crown.

The Department of Lands and Surveys is responsible for the leasing and alienation of Crown land, except where mining and forestry tenures are involved, and is under the control of the Minister for Lands. In certain instances, advisory or partly-executive boards have been created to assist in administration. These include the Land Board, which deals with general applications for land, and the Pastoral Appraisalment Board.

Permits and leases for mining purposes are issued by the Department of Mines and those for forestry and timber milling by the Forests Department.

#### METHODS OF LAND ALIENATION

The principal methods of alienation provided for in the *Land Act, 1933-1969* are conditional purchase, public auction, private tender, selection under Part VIII which supersedes the Agricultural Lands Purchase Act, endowment (including free Crown grants) and reservation for public purposes. In addition to these normal methods of alienation there is provision in the Land Act for the release of land under special circumstances, where particular developmental projects are envisaged. In such cases any agreement must be ratified by the State Parliament.

The various methods of land alienation are described in greater detail in Chapter VII of the *Western Australian Year Book*, No. 8—1969 and earlier issues.

## METHODS OF LEASING

Brief reference was made on page 312 to the work of the Department of Lands and Surveys, the Department of Mines and the Forests Department in granting leases of Crown lands in Western Australia. A summary of the activities of each Department in this field is given below, further details appearing in Chapter VII of the *Western Australian Year Book*, No. 8—1969, No. 6—1967 and earlier issues.

### Department of Lands and Surveys

Approximately 98 per cent of the Crown land held under lease is covered by tenures granted by the Department of Lands and Surveys under the Land Act, and consists mainly of pastoral leases, special leases, leases of reserves and leases of residential lots. In addition, areas of perpetually-leased farming land have been made available to ex-servicemen under the War Service Land Settlement Act.

### Department of Mines

Under the provisions of the *Mining Act, 1904-1970*, various special tenures, of which gold-mining leases, mineral leases and coal-mining leases are the most important, are granted by the Governor in connection with the mining of gold, coal and other minerals. The Act contains provisions relating to the payment of fees, rents and royalties. The Governor may exempt any person or class of persons from the payment of royalties.

Oil search permits and licences are granted by the Minister for Mines, and petroleum leases by the Governor under the provisions of the *Petroleum Act, 1967* and the *Petroleum (Submerged Lands) Act, 1967-1970*, with authority to charge fees, rents and royalties.

### Forests Department

While not designated as leases, certain of the tenures issued under the *Forests Act, 1918-1969*, such as Sawmilling Permits and Mill Site Permits, are similar in effect. A number of other leases, licences and permits are issued by the Forests Department, one of which, the Forest Produce Licence, authorises the licensee to collect various types of forest products other than millable timber. Permits are also granted for apiary sites of an area not exceeding three acres.

## LAND CLASSIFICATION

Large-scale as well as detailed soil survey measures have been developed progressively in Western Australia since the early days of settlement. Soil mapping of Crown lands in Western Australia has always been carried out as a function of the Department of Lands and Surveys. In the early years of land settlement the staff surveyors, when marking blocks, submitted classifications and commented generally on the probable yield and carrying capacity of the land, as a guide to pricing.

Modern survey techniques enables much use to be made of photogrammetric methods in the mapping and presentation of the soil survey, particularly in definition of vegetation and topographical detail such as rivers, creeks, swamps, hills, valleys, features such as rock outcrops and sand drifts, and the general contours of the land. Much topographical detail is available from the State mapping activities and this information is always used in conjunction with the field work of the soil survey.

The soils are graded into eight categories, to facilitate pricing procedure, due regard being given to the agricultural potential as determined by analysis and experimentation by the Department of Agriculture. This enables release of land in such a manner that each unit is adequate if developed on economic methods. At the same time, the soil

maps assist in the overall planning for provision and extension of services such as roads, water and power supplies, townsites and all the services essential to regional development. Pastoral potential appraisements are presented with more emphasis on the grazing potential of natural vegetation in order to assess estimated carrying capacities, rather than detailed soil types.

In addition to the soil and pastoral mapping surveys which are carried out under the direction of the Surveyor General, similar methods are used by other Government Authorities and private organisations, for forestry assessment, classification and control, and for geological mapping.

It has been estimated by the Surveyor General that, of the State's total area of 975,920 square miles about 11 per cent is represented by the agricultural areas, 52 per cent by the pastoral regions and the remaining 37 per cent by practically unoccupied areas of the interior. Soil mapping investigations have enabled a broad assessment of the total area and a detailed assessment of the bulk of the agricultural areas and pastoral regions.

### OCCUPATION OF LAND

The following table shows, for a selection of years during the period from 1900 to 1969, the areas of land absolutely alienated or in process of alienation and of Crown land held under certain types of lease or licence. For the years 1900, 1910 and 1920 the basis of classification according to Department has been made to conform to current practice in the issue of leases and licences. For example, tenures relating to forests, which were originally issued by the Department of Lands and Surveys and later by the Department of Mines, have been shown for those years under the heading of Forests Department. For 1930 and later years the figures are as recorded by the Departments concerned. The types of tenure included under the several departmental headings are indicated in the footnotes to the table.

#### LAND ALIENATED AND LAND HELD UNDER LEASE (\*000 acres)

At 31 December—	Area absolutely alienated	Area in process of alienation	Area of leases or licences in force on Crown land and issued (a) by—			
			Department of Lands and Surveys		Department of Mines (c)	Forests Department (d)
			Pastoral leases	Other leases (b)		
1900 ....	3,462	3,157	86,429	11	84	852
1910 ....	4,534	13,716	166,060	554	106	1,291
1920 ....	8,953	14,722	258,024	2,469	103	1,640
1930 ....	14,671	21,275	224,106	885	84	1,333
1940 ....	18,305	13,843	204,787	2,084	94	2,357
1950 ....	21,564	11,831	(e) 195,736	3,460	101	3,578
1960 ....	27,572	12,813	218,194	6,635	91	3,995
1965 ....	30,129	15,059	234,285	7,197	74	4,175
1966 ....	30,912	15,387	235,112	7,029	87	4,292
1967 ....	31,936	15,490	237,165	7,106	99	4,168
1968 ....	32,951	15,244	238,232	7,128	103	4,052
1969 ....	34,312	14,170	238,590	6,402	142	3,739

(a) See letterpress preceding table.

(b) Comprises special leases, leases of reserves, leases of residential lots and perpetual leases. (c) Comprises gold-mining leases, mineral leases and miners' homestead leases. (d) Predominantly sawmilling permits. Includes permits for cutting wandoo for tannin extraction but excludes permits and licences for cutting timber and firewood in Goldfields areas. (e) Apparent decrease in area due mainly to revision in the records of the Department of Lands and Surveys.



Land which is shown as 'absolutely alienated' consists mainly of farming areas, acquired originally as conditional purchase leases and subsequently alienated under Crown grant. While held under lease prior to alienation they account for most of the land shown as 'in process of alienation'. These two sets of figures taken together consequently give a broad indication of the increased use of land for agricultural purposes during the period under review. Similarly, variations in the area occupied as sheep and cattle stations may be gauged by reference to the area of pastoral leases issued by the Department of Lands and Surveys.

The passing of the Homesteads Act in 1893 and of a comprehensive Land Act in 1898 provided the basis for a rapid increase in the settlement of agricultural land. Under the Homesteads Act, any man over the age of 18 years who did not already own an area of 100 acres or more in this State could apply for a free homestead farm of 160 acres, on condition that he resided on his land during at least six months of each of the first five years and carried out prescribed improvements. With a lower minimum age of 16 years, a similar provision is contained in the *Land Act, 1933-1969*, and this provision, operating in conjunction with the conditional purchase lease system, has also been a factor in the increase in land settlement, particularly in the wheat-growing areas.

About 1905 the Department of Lands and Surveys, by implementing a system of survey and subdivision before selection, partially checked the indiscriminate selection of land by inexperienced farmers. A further stabilising influence on agricultural development was the introduction in 1909 of a system of grading Crown lands into classes, First, Second and Third according to suitability for farming.

The movement of population from the goldfields to the wheat belt contributed to the increase in the area of land in process of alienation from 3,156,798 acres in 1900 to 12,880,195 in 1910. The ultimate alienation of about one-third of this land by Crown grant is reflected in the greatly increased figures for 'absolutely alienated' land in 1920. Settlement of the wheat belt developed rapidly during and after the period 1910 to 1920, in spite of serious droughts which occurred in 1911 and 1914. Although the increased totals at 30 June 1930 were principally due to this development, they resulted in part from the acquisition during the previous ten years of farmland, mainly for dairying, in the south-west of the State under the Group Settlement Scheme. These holdings were individually much smaller than those in the wheat-growing districts, because of the type of farming and the heavy clearing costs, but the numbers involved made the total area taken up under the Scheme of some significance.

Pastoral leases, which comprise the greatest proportion of Crown land held under lease or licence, increased threefold between 1900 and 1920. The area actually held under Pastoral Lease conditions represents approximately one-third of the whole State. The aggregate area of gold-mining leases, mineral leases and miners' homestead leases, appearing in the table under the heading of Department of Mines, shows comparatively little variation since 1900. However, in recent years very large areas have been included in tenures issued under the provisions of the *Petroleum Act, 1967* and in temporary reserves under the *Mining Act, 1904-1970*. At 31 December 1969 there were in force under the *Petroleum Act, 1967* 21 permits to explore covering 158,214,400 acres, 7 licences to prospect covering 942,720 acres and 2 petroleum leases covering 128,000 acres. In addition there were 35 permits to explore, under the *Petroleum (Submerged Lands) Act, 1967-1970*, covering 139,730,432 acres.

From 1930 the demand for land for agricultural purposes declined considerably, the principal reason being the lower farm commodity prices which prevailed for several years prior to the second World War. After 1945, however, the demand for land again increased, stimulated by the sharp rise in export prices, notably of wheat and wool, and later by the War Service Land Settlement Scheme. The area conditionally alienated in any one year reached a post-war peak of 1,707,894 acres in 1953. During the next decade the area fluctuated between 705,874 acres in 1956 and 1,234,516 acres in 1962. The area then declined and in 1968 it was 795,105 acres. In 1969 the area conditionally alienated fell further to 303,880 acres due to restrictions imposed on the release of Crown land by conditional purchase.

The following table gives details of areas of land for which applications were approved, during each of the years 1965 to 1969, by the Department of Lands and Surveys for conditional alienation or allocation under lease or licence. The figures shown for any year do not necessarily represent land allotted for the first time, as they may include land previously held under any of the several forms of land tenure.

**CROWN LANDS—AREA OF ALLOCATIONS**  
**APPROVED BY DEPARTMENT OF LANDS AND SURVEYS (a)**  
 (Acres)

Particulars	1965	1966	1967	1968	1969
Conditional alienation—					
Conditional purchases .....	1,077,764	916,263	*1,088,014	*788,976	298,773
Agricultural land purchases .....	.....	.....	611	* .....	.....
Town and suburban lots .....	290	400	792	* 344	310
Miscellaneous (b) .....	260	44,487	43,769	5,785	4,797
Total .....	1,078,314	961,150	*1,133,186	*795,105	303,880
Leases and licences—					
Pastoral leases and licences .....	2,434,099	3,593,254	4,232,887	1,933,357	2,728,400
Special leases .....	87,320	179,972	143,857	63,903	188,588
Miscellaneous leases (c) .....	48,279	452,730	56,041	38,119	50,372
Total .....	2,569,698	4,225,956	4,432,785	2,035,379	2,967,360

(a) See letterpress immediately preceding table. (b) Comprises free homestead farms and reserves. (c) Comprises perpetual leases, leases of reserves and leases of town and suburban lots. \* Revised.

### GOVERNMENT LAND SETTLEMENT SCHEMES

Although, generally, the method of land alienation and settlement in the agricultural areas of Western Australia has been by independent applications by individual settlers for conditional purchase leases, there has also been a series of government land settlement schemes. The more important of these are the Soldiers' Settlement Scheme following the 1914-18 war, the Group Settlement Scheme introduced in 1921, the War Service Land Settlement Scheme which was initiated in 1945 and other lesser schemes for the settlement of civilians. An outline of each of these schemes appears in Chapter VII of the *Western Australian Year Book*, No. 7—1968 and earlier issues.

## *Chapter VII—continued*

### **Part 2—Water Supply and Sewerage**

The principal water supply and sewerage systems of Western Australia are under the control of two State authorities, the Metropolitan Water Supply, Sewerage, and Drainage Board and the Public Works Department.

The Metropolitan Water Supply, Sewerage, and Drainage Board is constituted under the provisions of the *Metropolitan Water Supply, Sewerage, and Drainage Act, 1909-1970*. It came into being on 1 July 1964 and replaced the former Metropolitan Water Supply, Sewerage and Drainage Department as the authority responsible, subject to the Minister, for the general administration of the Act. The Board consists of seven members appointed by the Governor. One member is appointed Chairman on the nomination of the Governor and the remaining members comprise the General Manager of the Board; a qualified engineer; the Under-Treasurer or an officer of the Treasury nominated by him; and three representatives of ratepayers of municipal districts within the Metropolitan Water, Sewerage and Drainage Area. This area of approximately 1,600 square miles constitutes the territory under the Board's administration. It embraces Perth and the metropolitan area southward to Warnbro Beach and Serpentine, northward to Mullaloo and Herne Hill and eastward to Swan View-Sawyers Valley, Kalamunda, Bickley and Carmel, and also incorporates approximately 900 square miles of the water catchment areas of the Canning, Serpentine, North Dandalup and South Dandalup Rivers and streams of the Darling Range.

The Public Works Department controls the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply as well as 117 local water supplies. It also provides water for irrigation purposes in the three South-West Irrigation Districts (Waroona, Harvey and Collie River), the Camballin Irrigation District and the Ord Irrigation District. In addition, a small pilot scheme supplying twenty-six growers in the Carnarvon Non-Artesian Area is being operated.

Four independent town schemes are controlled by local Water Boards in country areas under the *Water Boards Act, 1904-1969* and some local authorities supply water under the provisions of the *Local Government Act, 1960-1970*. Private companies engaged in mining in the North-West of the State provide their own water supply for mining operations, power supply and domestic use. Individual water supplies serve railways, timber mill towns, isolated mines, pastoral properties, stock routes and agricultural areas, mainly from dams, tanks, wells and bores.

The principal water storages in Western Australia are shown in the next table. Supplies for the metropolitan area and environs are drawn almost entirely from Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. Mundaring Weir, which is the source for the Goldfields and Agricultural Water Supply, is linked to Kalgoorlie by pipeline and serves the more populous parts of the Eastern Goldfields as well as certain towns and farming areas north and south of the main pipeline. As occasion arises Mundaring Weir supplies to or draws from the Metropolitan Water Supply. Stirling Dam, with a supplementary catchment at Harvey Weir, serves part of the irrigation area of the South-West. Drakes Brook Dam, Samson Brook Dam, Logue Brook Dam, Waroona Dam and Glen Mervyn Dam are also used for this purpose. Wellington Dam, on the Collie River, has been enlarged to meet not only the needs of the southern parts of the irrigation area but also of towns included in the Great Southern Towns Water Supply.

The storage capacity of the several dams and reservoirs at 30 June 1969 was as shown below.

**DAMS AND RESERVOIRS—STORAGE CAPACITY (a)**  
(Million gallons)

Dam or reservoir	Storage capacity	Dam or reservoir	Storage capacity
Canning Reservoir .....	20,550	Samson Brook Dam .....	2,021
Churchman Brook Reservoir .....	480	Serpentine Pipehead Reservoir .....	850
Drakes Brook Dam .....	504	Serpentine Reservoir .....	39,000
Fitzroy Dam .....	1,025	17-Mile Dam (d) .....	1,209
Glen Mervyn Dam .....	329	Stirling Dam .....	12,552
Harvey Weir .....	(b) 1,765	Victoria Reservoir .....	189
Logue Brook Dam .....	5,358	Warona Dam .....	3,290
Mundaring Weir .....	16,966	Wellington Dam .....	40,790
Ord River Diversion Dam (c) .....	21,467	Wungong Brook Diversion Weir .....	(e)

(a) At 30 June 1969. (b) Excludes flashboard storage. (c) Bandicoot Bar Dam. (d) On Uralla Creek, an anabranch of the Fitzroy River. (e) Diversion weir only.

**METROPOLITAN WATER SUPPLY**

The sources of the metropolitan water supply are Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. The supply from these sources is supplemented as necessary from a pipeline link with Mundaring Weir and from a number of artesian bores. The amount of bore water used, however, is now low in proportion to total metropolitan consumption, being rarely more than 10 per cent during a severe summer and usually considerably less.

**METROPOLITAN WATER SUPPLY—QUANTITIES OF WATER DRAWN (a)**  
(Million gallons)

Source	1964-65	1965-66	1966-67	1967-68	1968-69
Canning Reservoir .....	7,200	7,462	8,071	5,328	9,315
Churchman Brook Reservoir .....	759	661	635	933	839
Mundaring Weir .....	238	226	282	148	332
Serpentine Reservoir (b) .....	10,194	11,736	13,773	16,123	14,551
Victoria Reservoir .....	896	271	(c)	120	253
Wungong Brook Diversion Weir .....	708	822	1,772	1,064	1,832
Metropolitan bores .....	1,093	804	1,579	1,437	1,228
Total .....	20,788	21,982	26,112	25,152	28,350

(a) Including supplies to railways and shipping.  
(c) Not in use during 1966-67.

(b) Includes water drawn from Serpentine Pipehead Reservoir.

Victoria Reservoir, which was completed in 1891 with a capacity of 189 million gallons, was the first of the existing water conservation projects to be completed in the Darling Range. In 1921 a 23-million gallon reservoir, which is no longer used for water supply, was constructed at Bickley Brook to replace a pipehead dam, and in 1928 one with a capacity of 480 million gallons was completed at Churchman Brook. During the same period pipehead dams were built across the upper course of the Canning River and its tributary, Wungong Brook, preliminary to the construction of Canning Reservoir, which was begun in 1933 and completed in 1940. Canning Reservoir has a storage capacity of 20,550 million gallons retained by a concrete wall 218 feet high and 1,534 feet long at the crest. Serpentine Pipehead Reservoir was completed in 1957 and Serpentine Reservoir, commenced in 1957, was completed in 1961. Serpentine Reservoir is constructed of rolled earth fill and the embankment rises 171 feet above the stream bed, the length at the crest being 1,390 feet. Its capacity, which is slightly less than that of Wellington Dam on the Collie River, is 39,000 million gallons.

Water from the storages in the Darling Range is conveyed to the metropolitan area by large trunk mains and then distributed by feeder, distribution and reticulation mains, either directly from the trunk mains or from large service reservoirs at Mount Yokine,

Mount Eliza, Bold Park, Mount Hawthorn, Richmond, Melville, Buckland Hill, Hamilton Hill, Thompson Lake and Greenmount and from summit tanks and water towers situated at high points throughout the area supplied. To meet the peak demand during the summer months, supplies from these sources are supplemented from a system of artesian bores which can provide a daily maximum of 21 million gallons. On 30 June 1969, the number of consumer services was 185,340. The previous table shows the quantities of water which were drawn from the various sources during each of the five years ended 30 June 1965 to 1969.

## COUNTRY WATER SUPPLIES

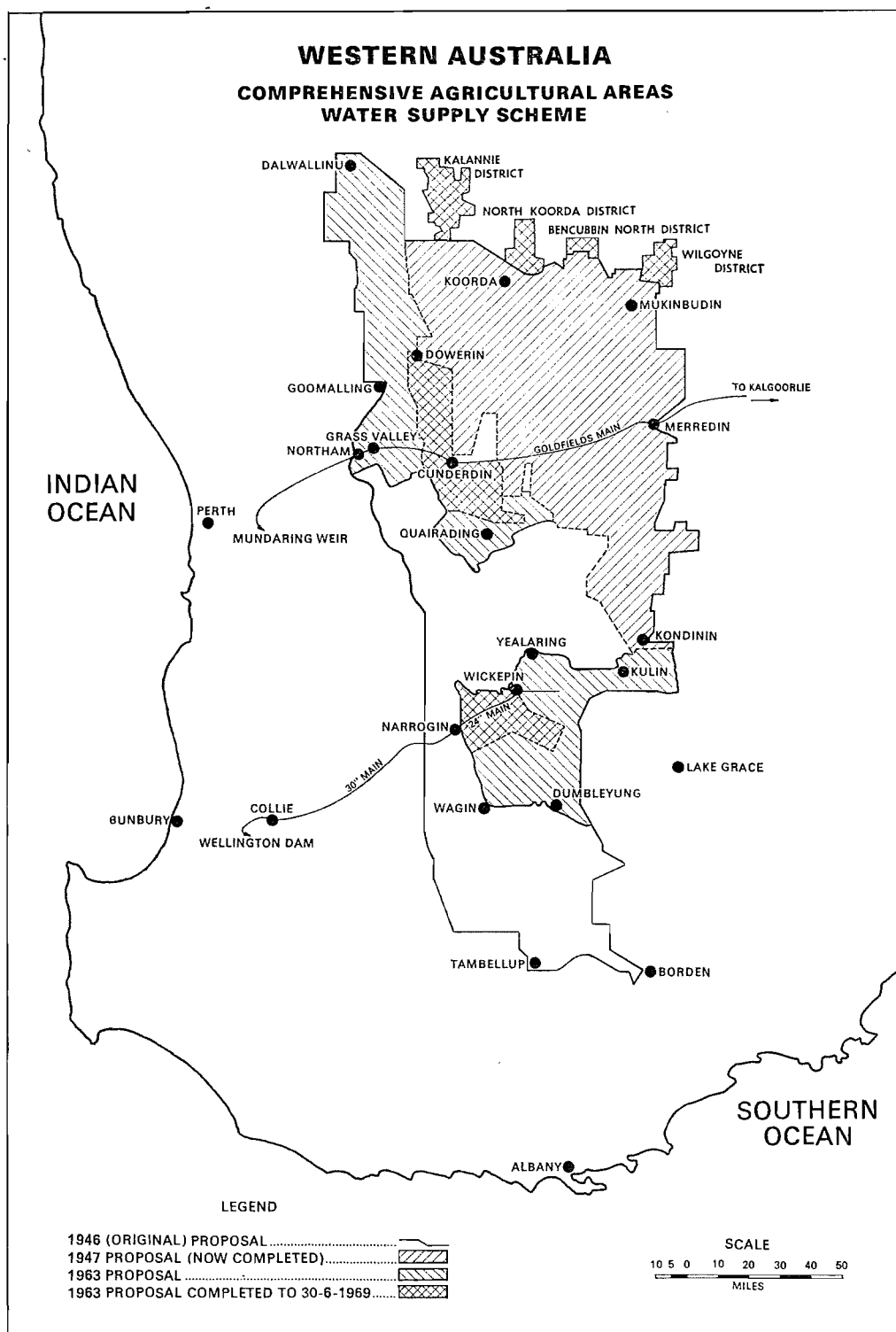
### Supplies controlled by the Public Works Department

Since 1947 enlargement and extension of the Goldfields and Agricultural Water Supply and the development of the Great Southern Towns Water Supply have been carried out mainly in accordance with a project known as the Modified Comprehensive Scheme. A proposal for a comprehensive water supply scheme was first submitted by the State Government to the Commonwealth Government in January 1946 when applying for financial assistance in its construction. The initial plan was intended to supply water to towns and farms in an area of 11.6 million acres in mixed farming (cereal and sheep) districts of Western Australia, as well as to increase the supply to the Eastern Goldfields. A committee appointed by the Commonwealth Government to consider the State's submission reported that certain areas within the scheme had a higher priority than others. As a result, the project was greatly reduced in scope and a modified scheme, to embrace 4.1 million acres, was agreed to by both Governments and adopted in October 1947. The extent of the scheme as originally proposed, and as modified, is shown on the map on page 320. A description of the boundary of the modified scheme is contained in a schedule to the *Agricultural Areas, Great Southern Towns, and Goldfields Water Supply Act, 1947* (State), which gave parliamentary approval of the undertaking. Commonwealth financial aid was provided by means of the *Western Australia Grant (Water Supply) Act 1948* (Commonwealth) and later amendments, which authorised reimbursement to the State of one-half of its expenditure on the scheme, up to a maximum grant of \$10 million.

The modified scheme was completed in 1961, the total expenditure amounting to \$20.6 million. A request made by the State Government in 1960 for a grant equal to half the cost of extending the scheme virtually to the boundary as first proposed in 1946 was rejected by the Commonwealth Government. Following this rejection the State Government embarked on a necessarily limited programme financed from its own loan moneys, the policy being to restrict extensions to supply certain towns within the original area and farm lands adjacent to pipelines. A further request was made by the State Government in 1963 for a grant of \$10.5 million payable over a seven-year period and representing one-half of the estimated cost of proposed extensions which would increase by 3.7 million acres the area served by the scheme. The Commonwealth agreed to provide assistance in the form of an interest-bearing loan up to a maximum of \$10.5 million, advances to be made during a period of eight years commencing with the financial year 1965-66. Legislative authority for the loan is given by the *Western Australia (South-west Region Water Supplies) Agreement Act 1965* (Commonwealth). The map on page 320 shows the additional areas to be reticulated under the 1963 proposals and the portion completed at 30 June 1969.

### Goldfields and Agricultural Water Supply

The original purpose of this undertaking, which was formerly known as the Goldfields Water Supply was to supply water for the Coolgardie and the Kalgoorlie-Boulder areas. To provide conservation, the Helena River was dammed near Mundaring, and on completion of the reservoir in 1902 it had a capacity of 4,655 million gallons. The increasing demand for water in the area served made it necessary to augment supplies. This was achieved by raising the wall 32 feet to a height of 132 feet and when the work was completed in 1951 the enlarged capacity of the reservoir was 15,154 million gallons.





#### ORD RIVER DAMSITE

The Ord River in the Kimberley is the source of water for the first large-scale irrigation project in the north of the State. Construction of the main dam commenced in 1969 and completion is planned for June 1972. Capacity of the main dam will be 4.6 million acre-feet, equivalent to more than 1,256,000 million gallons.



The capacity has since been further increased to 16,966 million gallons by the erection of adjustable steel crest gates four feet in height. The main pipeline between Mundaring and Kalgoorlie is 344 miles long. It is for the most part 30 inch diameter steel but has 42 inch and 36 inch pipe in the western portion. The pipeline is equipped with thirteen pump stations. The maximum pumping capacity from Mundaring Weir is 21 million gallons per day. The total capacity of all receiving, regulating, standby and service tanks (including three standby reservoirs at Kalgoorlie with a combined capacity of 60 million gallons) is 169 million gallons.

At 30 June 1969 the Goldfields and Agricultural Water Supply was serving 105 towns and water was being reticulated to farms in an area of 5.2 million acres. The number of services, length of water mains and consumption for the years 1964-65 to 1968-69 are given in the following table.

GOLDFIELDS AND AGRICULTURAL WATER SUPPLY

Year	Number of services (a)	Mileage of water mains (a)	Consumption (a) (million gallons)						Total
			Domestic	Commercial	Industrial (including railways)	Mining	Farms and market gardens	Other	
1964-65	24,208	3,940	1,012	124	204	575	619	263	2,798
1965-66	25,094	3,992	930	114	246	538	517	257	2,602
1966-67	25,554	4,029	1,026	138	285	569	694	262	2,974
1967-68	26,305	4,187	1,130	142	251	579	689	285	3,077
1968-69	24,973	4,197	1,139	191	259	620	734	294	3,237

(a) Figures include amounts consumed from local supplies at Waddouring-Barbalin-Knungajin, Bruce Rock, Narembreen and Kondinin.

Extensions to country towns and agricultural areas have been made from several points along the main pipeline. Norseman is connected by an extension southward from Coolgardie. A branch from this main supplies the nickel mining town of Kambalda. From a point west of Merredin water is taken northward to supplement local schemes at Waddouring-Barbalin-Knungajin. Other extensions north and south of the main pipeline provide water for a number of towns and surrounding districts, including Toodyay, Goomalling, York, Beverley and Bullfinch. A pipeline southward from Merredin to serve Bruce Rock, Narembreen, Kondinin and surrounding districts and Kulin and surrounding districts is linked to an extension south-west from Doodlakine and taken westward to supply Corrigin. A main south from Cunderdin serves Quairading and the intermediate farmlands. Areas north-west of Burracoppin are served by an extension northward from a point east of Merredin, and districts north of Kellerberrin by a pipeline connecting Kellerberrin to the Waddouring-Barbalin-Knungajin system already mentioned. Water is taken northward from Cunderdin through Minnivale to a point near Kokardine. Extensions westward, eastward and northward from this pipeline serve a number of towns and localities, including Dowerin, Wyalkatchem, Yelbeni, Koorda, Kalannie, Pithara, Ballidu, Dalwallinu and Wongan Hills, and surrounding farm lands. An extension northward from the main pipeline serves Koolyanobbing, where iron ore is mined.

### Great Southern Towns Water Supply

The Great Southern Towns Water Supply serves towns on the Great Southern Railway from Brookton to Katanning, as well as a number of other towns. Water is drawn from Wellington Dam which also supplies the Collie River Irrigation District. Work on the raising of the wall of the Dam was completed in 1960 and, with a capacity of 40,790 million gallons, it is now the largest in the State. Water is taken through Narrogin to Wickiepin by means of a main pipeline 106 miles long. In addition to the pumping installation at the dam site, there are stations at a point twenty-eight miles east of the dam and at Narrogin. From Narrogin, pipelines extend forty miles northward to Brookton and fifty-nine miles southward to Katanning. A branch westward from Katanning serves the town of Kojonup and a second branch extends south-eastward through Broomehill to

Gnowangerup. From Wickopin the pipeline extends southward to Dumbleyung, east ward to Kulin and northward to Bullaring through Yealering. A pipeline eleven miles long supplies water to a power station constructed for the State Electricity Commission at Muja, south-eastward from Collie.

At 30 June 1969 the Great Southern Towns Water Supply was serving twenty-six towns. Details of the number of services, length of water mains and consumption for the years 1964-65 to 1968-69 are given in the following table.

GREAT SOUTHERN TOWNS WATER SUPPLY

Year	Number of services	Mileage of water mains	Consumption (million gallons)					Total
			Domestic	Com-mercial	Industrial (including railways)	Farms and market gardens	Other (a)	
1964-65 ....	7,752	419	333	36	66	22	60	518
1965-66 ....	7,958	450	286	35	207	24	59	611
1966-67 ....	8,161	452	341	41	354	33	69	840
1967-68 ....	8,507	530	361	46	179	35	67	689
1968-69 ....	8,891	536	392	49	144	42	89	714

(a) Excludes mining, for which no services were provided by the Public Works Department.

### Supplies to other Country Towns

One hundred and seventeen towns and localities are supplied with water from stream flow, dams, tanks, wells and bores, the schemes being administered under the provisions of the *Country Areas Water Supply Act, 1947-1964*. The following table gives, for these local schemes, the number of services, length of water mains and consumption for the years 1964-65 to 1968-69.

PUBLIC WORKS DEPARTMENT: LOCAL SCHEMES

Year	Number of services	Mileage of water mains	Consumption (million gallons)					Total
			Domestic	Com-mercial	Industrial (including railways)	Mining and shipping	Farms and market gardens	
1964-65 ....	21,322	679	886	206	198	18	55	1,571
1965-66 ....	22,389	796	918	234	237	18	28	1,689
1966-67 ....	23,745	833	1,173	281	262	20	34	2,061
1967-68 ....	25,372	857	877	254	210	17	16	1,615
1968-69 ....	27,481	1,002	1,515	364	292	15	56	2,597

The Public Works Department is also responsible for the provision and maintenance of tanks and wells as a source of cartage water for a number of small communities in gold-mining and agricultural areas.

### Other Country Water Supplies

As well as the schemes controlled by the Public Works Department, there are four local Water Boards operating under the *Water Boards Act, 1904-1969* which also draw supplies from stream flow, dams, tanks, wells and bores. In addition, some local authorities exercise powers under the *Local Government Act, 1960-1970* to supply water within their boundaries. There are still, however, a large number of individual farms and pastoral stations which are not connected to public schemes and are therefore obliged to provide their own supplies. The Forests Department and sawmilling companies operate schemes to supply water to their mill towns. In a number of ports and mining towns in the North-West of the State, mining companies are responsible for the provision of their own water supplies, and while the principal source of supply is underground reserves, desalination of sea water is also being used.

Railways of the Commonwealth and State Governments make independent provision for supplies of water for their own purposes, although considerable additional quantities are consumed by the railways from other sources, such as those controlled by the Public Works Department and the Metropolitan Water Supply, Sewerage, and Drainage Board.

### UNDERGROUND WATER

Considerable use is made of underground water by individual farmers, pastoralists, market gardeners, etc. and it is estimated that over 50,000 bores are in use in the State. The quality of the water varies from place to place and much of it is too saline for irrigation or even stock. Both pressure waters and non-pressure waters are used to supply or augment the supplies of numerous towns, including such major centres as Perth, Albany, Bunbury, Busselton, Carnarvon, Esperance, Exmouth, Geraldton and Port Hedland, and the list is growing.

Substantial advances in the knowledge of aquifers and quality of water in the main sedimentary basins have been made as a result of extensive geological surveys and exploratory drilling by the Geological Survey (a branch of the Department of Mines), several oil companies, and developmental drilling by the Public Works Department, and the Metropolitan Water Supply, Sewerage, and Drainage Board.

The Public Works Department and the Metropolitan Water Supply, Sewerage, and Drainage Board are responsible for all developmental works. The Geological Survey is responsible for all exploratory works, as well as for investigating and assessing the State's groundwater resources, and advising local government authorities, private industry and individuals on groundwater problems.

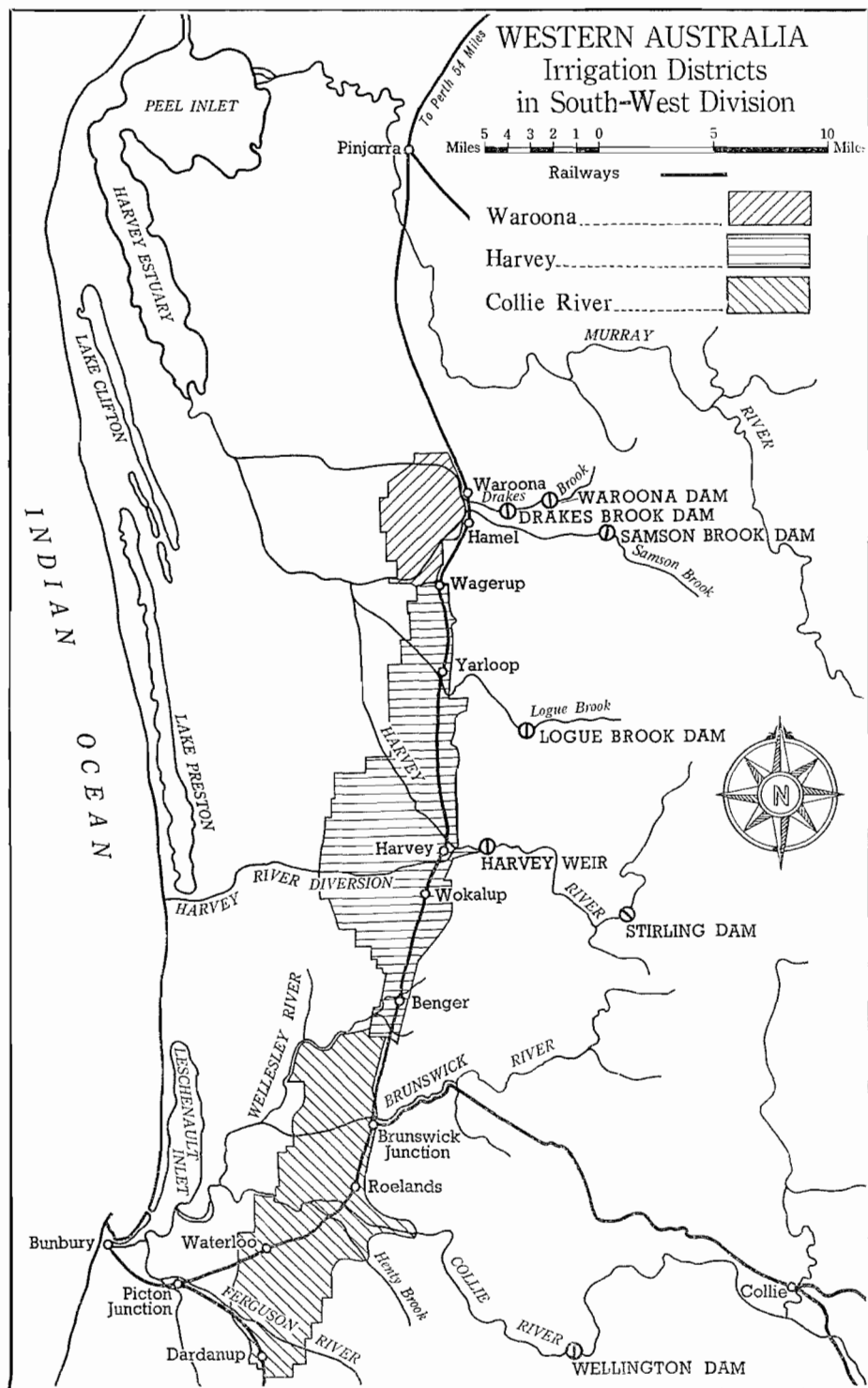
### SOUTH-WEST IRRIGATION SCHEMES

Irrigation schemes have been established by the State Government on the coastal plain south of Perth in the Waroona, Harvey and Collie River Irrigation Districts between Waroona and Dardanup, the water being channelled from dams in the adjacent Darling Range.

Specialist advice on irrigation farming methods is available through the Department of Agriculture and the properties are watered on a rotational plan, according to the 'Zone', or section of the District, within which the farms are situated. Three free waterings are given each season on all rated land. All other waterings are charged for and special waterings, out of rotation, are available at a higher fee.

The Harvey Irrigation District, opened in 1916, was the first large-scale project. Harvey Weir, with a capacity of 520 million gallons on completion, was constructed as the source of water supply and the service initially provided was for 3,000 acres of land for citrus growing.

The success of dairying and stock raising and to a lesser extent vegetable growing, which have replaced citrus culture, has led to gradual but substantial extensions of the South-West irrigation area. The damming of Drakes Brook in 1931 and Samson Brook in 1941 provided a storage capacity of 2,281 million gallons which, by alterations to Samson Brook Dam in 1960, has been increased to 2,525 million gallons and is used for the irrigation of 3,450 rated acres in the Waroona Irrigation District. Construction of a third storage to serve the Waroona District was begun in 1963. Known as Waroona Dam, it has been built on Drakes Brook about three miles up-stream from the existing Drakes Brook Dam. Its capacity is 3,290 million gallons and storage, which commenced in June 1966, was available for the 1966-67 irrigation season. In 1931 the capacity of Harvey Weir was enlarged to 2,275 million gallons (including flashboard storage) and in 1948 Stirling Dam, with an original capacity of 12,060 million gallons (increased to 12,552 million gallons by alterations in 1958), was completed further up-stream on the Harvey River. These works enabled the Harvey Irrigation District to be extended northward to link with the Waroona District. Logue Brook Dam, with a capacity of 5,358 million gallons, was completed in 1963 and provides additional supplies for the Harvey Irrigation District, the rated area of which is now 13,391 acres.



During 1969 construction of the Glen Mervyn Dam on a tributary of the Preston River near Mumballup was completed. Water from this dam will be available each summer for controlled release into the Preston River when the natural stream flow is insufficient for the irrigation of orchards downstream from Donnybrook.

Concurrently with developments in the Harvey and Waroona Irrigation Districts, action was taken to conserve water for the Collie River Irrigation District and Wellington Dam on the Collie River was completed in 1933. In view of its importance, not only to irrigation projects but also to the Great Southern Towns Water Supply, the wall of this reservoir has been raised and when work was completed in 1960 its capacity of 8,000 million gallons was increased to 40,790 million gallons. It serves an area of 11,684 rated acres in the Collie River Irrigation District, which extends from Brunswick Junction to Dardanup.

Details of irrigation in each district in the years 1967-68 and 1968-69 are given in the following table.

IRRIGATION: SOUTH-WEST SCHEMES

Particulars	Irrigation district						Total	
	Waroona		Harvey		Collie River			
	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69	1967-68	1968-69
Area watered—								
Pasture .....	4,065	4,012	13,646	14,158	12,647	13,512	30,358	31,682
Fodder crops .....	348	227	349	222	811	624	1,508	1,073
Potatoes .....	2	.....	.....	.....	256	232	258	232
Other vegetables .....	258	275	43	36	19	14	320	325
Orchards .....	.....	.....	202	188	44	47	246	235
Total .....	4,673	4,514	14,240	14,604	13,777	14,429	32,690	33,547
Acre waterings (a) .....	25,549	27,154	96,808	97,429	82,721	84,405	205,078	208,988
Average number of waterings (b) .....	5.5	6.0	6.8	6.6	6.0	5.8	6.3	6.1
Total water gauged at entry to district .....								
..... million gal	3,471	4,095	13,258	13,822	12,701	13,238	29,430	31,155
Dam capacity (c) .....	5,815	5,815	19,675	19,675	40,790	40,790	66,280	66,280
Length of channels .....	46	46	155	155	127	127	328	328

(a) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (b) Total acre waterings divided by total area watered. (c) Excludes flashboard storage.

## NORTHERN IRRIGATION SCHEMES

Although not yet comparable in size with the South-West undertakings, the irrigation areas at Carnarvon and on the Ord and Fitzroy Rivers in the northern portion of the State are of increasing significance.

**Carnarvon.** During the past thirty years a centre of tropical agriculture has been developed at Carnarvon, near the mouth of the Gascoyne River. At first a number of tropical fruits were grown but, until recent years, production consisted mainly of bananas. A considerable quantity of early beans is now grown for the metropolitan market and for export interstate, and production of tomatoes and a variety of other vegetables has also increased in importance.

Agricultural development has been made possible only by irrigation, as the rainfall is extremely variable and averages little more than nine inches per annum. Each holding has its own irrigation plant and, wherever possible, the pumping unit is installed on a bank of the Gascoyne River. Usually the river bed is exposed, as surface flow does not occur regularly each year. Concrete-lined wells have been sunk into the river sands and the water obtained is pumped either to storage tanks or direct to the plantation feeder channels, from which it is distributed among the plants by furrows. Because of the limitations of supply from the river sands, the State Government has instituted controls

over the quantity of water pumped by growers, has commenced to develop up-river sources and is delivering supplementary water by pipeline to thirty-six plantations on the south bank of the river at the eastern extremity of the Carnarvon Irrigation District. A tropical research station is maintained at Carnarvon by the Department of Agriculture. To the early activities of this research station may be credited much of the success of the Carnarvon plantations, notably in the field of plant selection and pest control, and experimental work is being continued.

**Ord River.** The Ord River in the Kimberley Division traverses a tropical area which receives monsoonal rains of irregular incidence and quantity, varying from an annual mean of twenty inches in the south to thirty inches in the north. Investigations at the Kimberley Research Station, established in 1945 and operated by the Department of Agriculture in conjunction with the Commonwealth Scientific and Industrial Research Organization, have shown that the climate and soil conditions are favourable for the cultivation of sugar-cane, rice, cotton, safflower and various oil seeds. As a result of these investigations the State Government, with Commonwealth financial assistance, has embarked on a project to provide water supplies for irrigation in the area.

The Ord Irrigation Project provides for the development of 178,000 acres of land agriculturally and topographically suitable for irrigation. The project comprises four stages, the first being the construction of a diversion dam to supply water for an area of 30,000 acres. The other stages are the building of a main storage dam with a capacity of 4.6 million acre-feet (equivalent to more than 1,256,000 million gallons), the progressive development of the whole 178,000 acres, and the construction of a hydro-electric power station.

The diversion dam, situated at Bandicoot Bar about sixty-five miles by road south-east of Wyndham and thirty miles downstream from the site of the proposed main dam, was officially opened on 20 July 1963. The capacity of the diversion dam is 21,467 million gallons and irrigation from the dam commenced in April 1963.

There are thirty farms included in the first stage of the project and each has an approximate area of 660 acres. Cotton is the principal crop, although small areas of other crops are being grown. Fattening of cattle on irrigated fodder crops shows promise as another alternative.

An area of 2,400 acres formerly used as a pilot farm is now being developed privately. Under an agreement with the Government, the company concerned is conducting experiments in large-scale grain sorghum growing and integration of sorghum growing with the existing cattle industry in the area.

The diversion dam was recognised by the Commonwealth Government in August 1959 as an approved project within the meaning of the *Western Australia Grant (Northern Development) Act 1958-1959* (Commonwealth). This legislation provides for payment by the Commonwealth to the State Government of a non-repayable grant of \$10 million for development of the part of the State north of 20°S. latitude. Of this grant \$8.2 million was spent on the diversion dam. In February 1963 a further approach was made to the Commonwealth requesting an amount of \$3.3 million for the completion of channels and drains required to develop the whole of the 30,000 acres included in the first stage of the project. The request was approved in August 1963 and moneys made available by way of grant in terms of the *Western Australia (Northern Development) Agreement Act 1963*.

In November 1967, the Commonwealth Government approved the plan for the second phase of the Ord River Irrigation Scheme and agreed to provide financial assistance to the State for the works involved. Agreement as to the terms and conditions for financing the second phase of the scheme was announced in March 1968. In terms of the *Western Australia Agreement (Ord River Irrigation) Act 1968* the Commonwealth agreed to provide financial assistance to the State in an amount equivalent to expenditure on the works, up to a maximum of \$48.18 million. The assistance will take the form of a non-repayable grant for the construction of the main Ord dam (estimated to cost \$20.93 million) and an interest-bearing loan for the associated irrigation and drainage facilities (estimated to cost \$27.25 million).

Construction of the main dam commenced in 1969 and completion is planned for June 1972. A pump station and irrigation supply facilities are planned for completion by December 1971 to bring 5,000 acres of new irrigated farmland into production on Packsaddle Plain.

**Fitzroy River.** On the Liveringa flood plain, grain and fodder sorghums are being produced at Camballin, sixty-five miles south-east of Derby. Irrigation water from the Fitzroy River is diverted, by means of a weir with a capacity of 1,025 million gallons constructed across the river, through Uralla Creek, an anabranch, for seventeen miles to another dam with a storage of 1,209 million gallons constructed on Uralla Creek.

During 1968-69, water used in the irrigation of crops amounted to 4,538 acre-feet. Later it will be necessary to construct a storage dam on the upper reaches of the Fitzroy River for the large-scale developments envisaged for this area.

Details of irrigation in the Ord and Camballin Irrigation Districts for the years 1967-68 and 1968-69 are given in the following table.

IRRIGATION: ORD AND CAMBALLIN DISTRICTS

Particulars	Irrigation district				Total	
	Ord		Camballin		1967-68	1968-69
	1967-68	1968-69	1967-68	1968-69		
Area watered .... acres	13,688	10,142	800	814	14,488	10,956
Acre waterings (a) ....	83,335	67,888	(b)	(b)	(c)	(c)
Average number of waterings (d) ....	6.1	6.7	(b)	(b)	(c)	(c)
Total water gauged at entry to district million gal	12,217	8,804	1,483	1,233	13,700	10,037
Dam capacity ....	21,467	21,467	(e) 2,560	(e) 2,560	(e) 24,027	(e) 24,027
Length of channels .... " miles	63	65	20	20	83	85

(a) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (b) Not applicable as irrigation is continuous. (c) See footnote (b). (d) Total acre waterings divided by total area watered. (e) Includes 326 million gallons of natural storage.

**Dunham River.** In addition to the government irrigation undertakings mentioned above, a private scheme is now in course of development in the Dunham River valley south of its confluence with the Ord River. An agreement between the Government of Western Australia and Goddard of Australia Pty. Ltd., subsequently ratified by the *Irrigation (Dunham River) Act, 1968*, authorises the company to construct a dam on Arthur Creek, a tributary of the Dunham River, to irrigate the pilot area. The company, in terms of the agreement, is required to subdivide the pilot area into not more than ten holdings each containing an area of approximately 1,000 acres, of which some 600 acres will be irrigated.

If the company demonstrates to the Government that it is both practical and economically sound to develop the pilot area for agricultural purposes by way of closer settlement in holdings of about 1,000 acres, the company will be authorised to proceed with phase 2 of the plan—the construction of a dam on the Dunham River and a suitable water distribution system. The additional area involved in the second phase of the scheme amounts to approximately 34,000 acres.

## WATER RESOURCES INVESTIGATION AND MEASUREMENT

Work on the investigation and measurement of the water resources of Western Australia, both surface and underground, has been accelerated in recent years partly due to the activities of the Australian Water Resources Council, which was established by joint action of the Commonwealth and State Governments in 1962. The Council comprises Commonwealth and State Ministers primarily responsible for water resources, with the Commonwealth Minister for National Development as Chairman.

The primary objective of the Council is the provision of a comprehensive assessment on a continuing basis of Australia's water resources, and the extension of measurement and research so as to provide a sound basis for the planning of future development.

In terms of its main objective, the Council in 1964 recommended, and the Commonwealth and State Governments agreed, that there should be an accelerated programme of establishment of stream gauging stations and investigation of underground water. Financial assistance to the States was rendered by the Commonwealth under the *States Grants (Water Resources) Act 1964*, subject to certain qualifying expenditure by each State, and during the three-year period ended 30 June 1967, non-repayable grants totalling \$581,342 were received by Western Australia.

Under the *States Grants (Water Resources Measurement) Act 1967*, financial assistance to the States was continued for a further three years until 30 June 1970. The maximum amount of grant payable to Western Australia over this period, subject to the State complying with specified qualifying conditions, totalled \$844,650. In addition to grants received in respect of 1969-70 for measurement of discharge of rivers (\$230,400) and investigation and measurement of underground water resources (\$81,150), expenditure financed by the State amounted to \$268,119 and \$694,861, respectively.

Financial assistance by the Commonwealth is extended to 30 June 1973 under the *States Grants (Water Resources Measurement) Act 1970*. Subject to specified qualifying expenditure by the State, the maximum amount of grant payable to Western Australia under the Act is \$1,951,800, comprising \$864,300 for measurement of discharge of rivers and \$1,087,500 for investigation and measurement of underground water resources.

### Surface Water

To enable rivers and streams to be utilised efficiently, the quantity and quality of water flowing in many rivers and streams throughout Western Australia are being measured. These vary from comparatively small streams, to relatively large rivers such as the Ord River in the Kimberley.

The number of stream gauging stations in operation is increasing each year and on 30 June 1970 was 164.

The major part of this work is carried out by the Public Works Department, but the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Agriculture also operate gauging stations. At 30 June 1970, the number of stations operated by these authorities was 156, 5 and 3, respectively.

The distribution of the gauging stations in the various drainage divisions is as follows:

South-West Coast Division	....	....	....	....	....	....	114
(Esperance to the Hill River)							
Indian Ocean Division	....	....	....	....	....	....	22
(Arrowsmith River to the De Grey River)							
Timor Sea Division	....	....	....	....	....	....	28
(Broome to the Ord River)							
Total	....	....	....	....	....	....	164

### Underground Water

To locate and measure the quantity and quality of underground water available to supply the ever-growing needs of town water supplies, industries, farmers, pastoralists, etc. a considerable amount of investigation, including drilling, is in progress in Western Australia. The work is being carried out by the Department of Mines, the Public Works Department, and the Metropolitan Water Supply, Sewerage, and Drainage Board, with the Department of Mines assuming the major responsibility for hydro-geological work.

Underground water exploration projects in course during 1969-70 included a major investigation of the Coorow-Watheroo area, where it is hoped to locate large quantities of underground water which may be pumped inland to serve towns and farms in agri-



cultural areas, and an investigation of the large calcrete aquifer on Millstream Station which may prove a suitable source for a regional water supply for industry, etc. in the southern Pilbara. Investigations to locate underground water to provide or augment the water supplies of Perth, Albany, Bremer Bay, Cervantes, Cranbrook, Eneabba, Nabawa, Kalbarri, Carnarvon and Port Hedland, were also carried out during 1969-70.

## SEWERAGE SCHEMES

### Metropolitan Sewerage

There are three major sewerage systems and four smaller systems administered by the Metropolitan Water Supply, Sewerage, and Drainage Board within the metropolitan area.

Sewage from the major systems either gravitates or is pumped through the pipe systems to treatment works at Subiaco, Swanbourne and Woodman Point. After treatment the effluent is discharged into the Indian Ocean, some distance from the coast under a substantial depth of water.

The four smaller systems are served by treatment plants at Canning Vale, Westfield, Eden Hill and Kelmscott, the treated effluent being disposed of in sandy soil in the vicinity of the plant sites.

The following table shows the number of services, population served and the length of sewer mains under the control of the Metropolitan Water Supply, Sewerage, and Drainage Board at 30 June for each of the years 1965 to 1969.

METROPOLITAN SEWERAGE SYSTEMS

At 30 June—		Services	Population served	Length of sewers
		number	persons	miles
1965	....	69,553	242,340	777
1966	....	70,283	243,500	816
1967	....	71,188	260,000	848
1968	....	72,177	280,048	886
1969	....	74,018	281,651	931

### Country Towns Sewerage

A number of towns outside the metropolitan area have sewerage schemes which were constructed pursuant to the *Country Towns Sewerage Act, 1948-1967*. In addition, a further eight schemes have been provided by local government authorities or as private development in mining areas by certain mining companies.

Some expansion in local authority construction can be anticipated because of a recent subsidy proposal of the State designed to assist local government authorities in developing this service.

The following table shows the number of towns sewered, the area sewered and the number of services controlled by the Public Works Department at 30 June for each of the years 1965 to 1969.

COUNTRY SEWERAGE SYSTEMS

At 30 June—		Number of towns sewered	Area sewered	Length of sewers	Services
		number	acres	miles	number
1965	....	18	3,456	133	5,251
1966	....	19	3,956	151	5,774
1967	....	20	4,317	162	6,417
1968	....	21	4,525	173	7,201
1969	....	22	4,882	186	7,967

## CHAPTER VIII—PRODUCTION

Secondary industry in Western Australia has become increasingly important and in recent years almost equalled primary industry in terms of net value of production. This relationship, however, is being materially affected by the development of recent major discoveries of minerals, including oil. Primary production, and in particular the agricultural, pastoral and mining sectors, may therefore still be regarded as having the greater influence on the economy of the State.

Farming has been carried on from the earliest years of settlement but its development was originally restricted by inadequate transport, shortage of labour and a limited local consumption. These difficulties were partly overcome by the introduction of convict labour during the period from 1850 to 1868, but the Colony was still dependent on the importation of many items of foodstuffs when the position was aggravated by a great influx of people attracted by the discovery of gold in the Kimberley in 1885 and by the spectacular finds in the 1890s at Coolgardie and Kalgoorlie and at other places on the eastern goldfields. Between 1890 and 1905 the population increased from 48,502 to 250,138 and, despite an increase in the area under crop from 69,700 acres to 364,700 acres during these years, agricultural production remained insufficient to meet local demands.

A decline in gold mining which began after 1903 caused a growing interest in farming as an alternative pursuit and by 1911 the area under crop had increased to more than 1 million acres, of which 612,000 were sown to wheat for grain. Since that time, although there have been some fluctuations in agricultural activity, the area under crop has risen to almost 9.5 million acres in 1968-69 of which 7.3 million acres are sown to wheat for grain.

Circumstances similar to those applying to agriculture stimulated the growth of the pastoral industry and large cattle and sheep stations were established on land leased from the Crown, mainly in the northern and north-western areas and in parts of the eastern goldfields. The number of cattle in the State increased from 131,000 to 825,000 and of sheep from 2,525,000 to 5,159,000 between 1890 and 1910, when nearly three-fifths of the sheep were in the pastoral areas and little more than two-fifths in the agricultural areas as defined on pages 357-8. With the development of mixed wheat and sheep farming the total number of sheep has risen and in 1969 was 32.9 million, but only about 12 per cent are now in the pastoral areas. Of the total of 1,546,254 cattle in the State in 1969 over 39 per cent were in the Kimberley Division where cattle are raised almost exclusively for meat production.

The contribution of mining to the Western Australian economy is substantial and in 1969 the major minerals in terms of value of production were iron ore, petroleum, gold, mineral beach sands, coal, bauxite, nickel, manganese, salt and tin. Production of minerals is expected to increase still further as deposits of petroleum, nickel, iron ore and bauxite in particular are developed.

Dairying with an average annual milk production over the last five years of over 58 million gallons, is a significant factor in primary industry.

The demand for jarrah and karri hardwoods has long been a feature of the State's economy. Indiscriminate cutting in earlier years and disregard of the need for preservation and regeneration threatened the survival of the timber industry. However, governmental controls over forestry operations and a policy of reforestation introduced in 1918 have proved to be effective and the industry is now established on a firm basis, timber forming an important component of primary production.

The overseas demand for rock lobsters (crayfish), which developed in post-war years, gave great impetus to the fishing industry and the total value of the take of fish has increased from \$739,000 in 1947 to \$20,561,000 in 1968-69. Interest in whaling was evident in the

first years of colonisation, exports of oil and whalebone being recorded in the earliest of the colonial Blue Books. Whaling activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949 when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. Since the 1963 season, activity has declined considerably following the imposition by the International Whaling Commission of a total ban on the taking of humpback whales. The only station now operating is at Frenchman Bay near Albany where sperm whaling is conducted.

Secondary industry has expanded substantially in recent years and may be expected to expand even more rapidly in future. There are a growing number of factories which rely mainly on the interstate and overseas export of their products and this recent trend indicates that dependence primarily on local demand is becoming less serious as an obstacle to development than it has been in the past.

## GEOGRAPHICAL DISTRIBUTION OF INDUSTRY

The following brief survey of production in the Statistical Divisions of the State should be read in conjunction with the map appearing at the back of the Year Book. Reference should also be made to the *Note on Statistical Divisions* preceding the Index.

The Perth Division (2,073 square miles), which has an estimated population of 635,500 (30 June 1969) or over two-thirds of the State total, is the principal centre of manufacturing activity with establishments engaged in most types of secondary industry. Many of the larger industrial establishments located in the Perth Division are concentrated in the Kwinana area where development has been encouraged by the dredging of a deep-water channel and the construction of harbour facilities to meet the requirements of large-scale projects.

Farm activity for the Division is confined mainly to the production of citrus, pome and stone fruits, eggs, poultry, vegetables and whole milk. Production is principally for consumption within the metropolitan area but small quantities are exported. In addition, most of the State's viticultural industry is carried on in this region. Table grapes, currants, raisins and sultanas are produced for the local market and for export, and wine-making grapes are grown for use in local wineries. A well-established fishing industry operates from the port of Fremantle, the main catch being rock lobsters. Bauxite is mined at Jarrahdale for treatment at an alumina refinery at Kwinana.

The South-West Division (11,030 square miles) is the main dairying area of the State and produces a large proportion of the total output of whole milk and of butter, cheese and condensery products. Pig raising is carried on both separately and as an ancillary activity to dairying. The rearing of cattle for meat production is also of major importance. Apples, pears, stone fruits, potatoes and other vegetables are grown extensively. Timber is one of the main products, being milled over a wide area, and coal, ilmenite and tin are the principal minerals produced. Commercial fishing is centred on Mandurah, Bunbury and Busselton. The factories of the Division include sawmills, butter, cheese and milk-processing plants, meat works, a superphosphate works, a large chemical factory producing titanium oxide pigments and two major electricity generating stations.

The Southern Agricultural, Central Agricultural and Northern Agricultural Divisions, which together cover 86,236 square miles, comprise the principal cereal-growing districts and produce the bulk of the State's wheat, oats and barley crops. The development of clover ley farming over a wide area has led to a remarkable increase in the number of sheep carried on farms in these Divisions and the total, 25.3 million, comprises three-quarters of the State's sheep population. There has been a corresponding rise in wool production which now represents over 75 per cent of the State's clip. The raising of cattle, principally for meat production, has also increased in importance and the number kept for all purposes is now 311,700 or more than 20 per cent of the State total. Tomatoes and other vegetables are grown in the area around Geraldton and citrus fruits in the Chittering area. Cattle for dairying and meat production, apple and pear growing and potato growing are important in the districts around Denmark, Albany and Mount Barker

while large quantities of peas for processing are produced around Mount Barker and Gnowangerup. Whaling and fishing are carried on from Albany, on the south coast, and the important rock lobster-fishing industry on the lower west coast is based on the Abrolhos Islands, Geraldton, Dongara, Jurien Bay, Cervantes and Lancelin Island. Lead has been mined near Northampton for many years and the mining of iron ore, which is being shipped to Japan from Geraldton, commenced at Koolanooka in 1966.

Factories in this Division include flour-mills, superphosphate works, butter factories, sawmills, a woollen mill, a charcoal iron and wood-distillation plant, a fish cannery and a meat works.

The North-West Division (75,731 square miles) has 1·33 million sheep, representing 4 per cent of the State total, and 28·4 thousand cattle. Tropical agriculture has been developed on the Gascoyne River at Carnarvon where bananas and beans and other vegetables are grown. An important prawn-fishing industry has been established in the Division, the principal areas being Carnarvon, Exmouth Gulf and Point Samson. Commercial fishermen operate also from Shark Bay.

The Kimberley Division (162,363 square miles), with over half a million cattle, or almost 40 per cent of the State total, and meat works at Wyndham, Derby and Broome is an important source of beef for export from Western Australia to overseas markets. Broome is also the centre of pearl-shell fishing. Culture pearls are being successfully produced at Kuri Bay in Brecknock Harbour, Cygnet Bay in King Sound and at Exmouth Gulf. Iron ore is mined at Cockatoo and Koolan Islands in Yampi Sound. Reference is made on pages 326-7 to agricultural developments at Kununurra on the Ord River and Camballin on the Fitzroy River.

The Eastern Goldfields, Central and Pilbara Divisions covering a total area of 638,486 square miles contain the principal gold and mineral fields of the State and almost all the gold produced in Western Australia comes from this area. Iron ore, which is used for the production of pig-iron at Wundowie in the Darling Range, east of Perth, has been mined since 1950 at Koolyanobbing, east of Bullfinch in the Yilgarn district. Deposits in this area are being mined on a large scale for the supply of ore to the blast furnace at Kwinana and for export. Other large-scale deposits of iron ore in the Pilbara Division are being mined for export or are under development for production. Further reference to these operations will be found on pages 391-2. A plant producing iron ore pellets from iron ore fines commenced operations at Dampier in 1968. Other minerals and ores produced elsewhere in these Divisions include nickel, beryl, felspar, gypsum, pyrites and ores of copper, manganese, silver, tin and tanto-columbite. Although mining is the main industry, these Divisions contribute also to pastoral output, the area containing almost 14 per cent of the sheep and 9 per cent of the cattle in the State. Cereals are grown in the south-western portion of the Eastern Goldfields Division, which produced over 9·2 million bushels of wheat, oats and barley in 1968-69.

## Part 1—Primary Production

### LAND UTILISATION ON RURAL HOLDINGS

In 1968-69 there were 23,004 rural holdings in the State, comprising 276·2 million acres of land or just over 44 per cent of the total area of Western Australia.

The total area of rural holdings consisted of 33·8 million acres of cleared land and 242·4 million acres uncleared. Of the cleared land, 9·5 million acres were used for crop, 15·4 million acres were under established pastures, 1·3 million acres were newly cleared during the season and 1·8 million acres were in fallow. The balance of the cleared area, 5·8 million acres, comprised land which was used for grazing or was resting during the season. The uncleared land is mainly pastoral leases held by sheep and cattle stations.

Land development in the post-war period was stimulated by generally favourable prices for agricultural and pastoral commodities. Special concessions to primary producers under the provisions of the taxation legislation also contributed to the increased capital investment in primary industry. This development, undertaken principally by established farmers and by the War Service Land Settlement Board, was aided by the introduction of modern mechanical methods of land clearing. As a result, the area of cleared land on rural holdings more than doubled, from 14.6 million acres in 1946-47 to 33.8 million acres in 1968-69. In the same period land used for crops increased from 3.5 million acres to 9.5 million acres and the area under established pastures from 2.1 million to 15.4 million acres. The area in fallow, which was 2.1 million acres in 1946-47, has not varied greatly over the period and in 1968-69 it was 1.8 million acres.

## LAND UTILISATION

Season	Cleared land						Active rural holdings	
	Used for crop (a)	Under established pasture	Newly cleared, prepared for next season	In fallow	Used for grazing or resting	Total	Number	Area
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres		'000 acres
1964-65 ....	7,289	10,427	1,120	1,757	8,952	29,545	22,856	268,553
1965-66 ....	8,449	11,382	1,194	1,942	7,931	30,898	22,853	270,054
1966-67 ....	8,558	13,018	1,300	2,023	6,970	31,869	23,181	274,765
1967-68 ....	8,883	14,528	1,357	1,846	6,193	32,806	23,116	275,334
1968-69 ....	9,490	15,363	1,298	1,828	5,784	33,762	23,004	276,174

(a) Excludes meadow hay.

## LAND UTILISATION IN EACH STATISTICAL DIVISION: 1968-69

Statistical Division	Cleared land						Active rural holdings	
	Used for crop (a)	Under established pasture	Newly cleared, prepared for next season	In fallow	Used for grazing or resting	Total	Number	Area
	acres	acres	acres	acres	acres	acres		acres
Perth ....	25,536	198,356	8,302	6,494	43,000	281,688	3,846	425,244
South-West ....	84,177	1,430,583	59,784	11,471	117,077	1,703,092	4,348	2,614,627
Southern Agricultural ....	1,418,247	4,525,037	298,390	359,236	892,114	7,493,024	4,694	10,390,995
Central Agricultural ....	4,386,492	4,833,708	302,312	606,231	2,196,052	12,324,795	5,020	15,499,549
Northern Agricultural ....	2,831,822	3,420,675	323,168	553,823	1,964,549	9,094,037	3,360	15,974,266
Eastern Goldfields ....	719,678	947,413	304,192	284,742	436,183	2,692,208	1,155	47,341,604
Central ....	3,703	3,643	1,000	200	74,230	82,776	157	64,998,317
North-West ....	1,692	22	35	332	969	3,050	241	41,573,094
Pilbara ....	2	...	...	...	...	2	56	23,443,483
Kimberley ....	18,162	3,068	440	5,539	60,012	87,221	127	53,912,442
Total ....	9,489,511	15,362,505	1,297,623	1,828,068	5,784,186	33,761,893	23,004	276,173,621

(a) Excludes meadow hay.

## EMPLOYMENT AND POPULATION

The permanent male work force on rural holdings in the State has been reasonably stable since the end of World War 2. This has been due partly to the rapid development of power farming, which is indicated by the rise in the number of farm tractors from 25,612 in 1960 to 35,005 in 1969. The result has been that, in spite of greatly increased production, there has been little change in the permanent male work force which has decreased from 30,580 in 1960 to 28,852 in 1969. Permanent male workers in 1969 consisted of 18,866 owners, lessees, tenants and share farmers, 1,346 farmers' relatives who were not receiving wages and 8,640 paid employees. Full information is not available regarding temporary, casual or seasonal employment and details are excluded from the following table. Female employment is also excluded because of the difficulty in separating domestic from farm activities.

## MALE EMPLOYMENT, POPULATION AND TRACTORS ON RURAL HOLDINGS

At 31 March—	Males working permanently full-time on holdings				Population of rural holdings			Farm tractors
	Owners, lessees, tenants and share-farmers	Relatives not receiving wages	Employees, including paid relatives	Total	Males	Females	Persons	
1965	20,569	1,232	8,502	30,303	50,353	41,917	92,270	32,028
1966	20,530	1,173	8,506	30,209	50,126	41,581	91,707	32,312
1967	20,215	1,289	8,051	29,555	50,000	41,596	91,596	33,997
1968	19,132	1,206	9,332	29,670	49,956	41,336	91,292	35,158
1969	18,866	1,346	8,640	28,852	48,509	40,403	88,912	35,005

## MACHINERY

Mechanisation continues to be a feature of farming in Western Australia and the following table shows the principal items of machinery on rural holdings at 31 March in each of the years from 1965 to 1969. The most significant change in machinery on rural holdings has occurred in relation to tractors. Not only have the numbers of tractors continued to increase but the trend is towards tractors of larger horsepower.

## MACHINERY ON RURAL HOLDINGS

Type	At 31 March—				
	1965	1966	1967	1968	1969
Cultivating machines—					
Mouldboard ploughs—					
Trailing type	(a)	(a)	2,755	(a)	(a)
Tractor-mounted type	(a)	(a)	1,787	(a)	(a)
Disc implements (including disc ploughs, disc cultivators and disc harrows)—					
Trailing type	(a)	(a)	17,911	(a)	(a)
Tractor-mounted type	(a)	(a)	3,848	(a)	(a)
Tine implements—					
Chisel ploughs, scarifiers, cultivators, rippers—					
Trailing type	(a)	(a)	11,789	(a)	(a)
Tractor-mounted type	(a)	(a)	4,184	(a)	(a)
Tine harrows—Number of sections—					
Trailing type	(a)	(a)	41,340	(a)	(a)
Tractor-mounted type	(a)	(a)	3,308	(a)	(a)
Rotary hoes—					
Self-contained power unit	1,579	1,647	1,823	1,793	1,743
Tractor-mounted and trailing types	1,406	1,539	1,513	1,517	1,578
Seeding and fertilising machines—					
Grain drills—					
Combine type	13,496	13,593	13,628	13,942	13,954
Other types	4,894	4,752	4,192	4,315	3,661
Fertiliser distributors and broadcasters	8,941	9,159	9,540	10,086	9,861
Maize and cotton planters	74	71	69	73	109
Harvesting machines—					
Grain and seed harvesters (b)	11,185	11,398	11,072	11,666	11,233
Mowers—					
Power-drive	7,382	7,343	7,581	7,327	(a)
Ground-drive	752	(a)	(a)	416	(a)
Hay rakes—					
Side-delivery	4,683	(a)	(a)	4,945	(a)
Dump	961	(a)	(a)	684	(a)
Buck	368	(a)	(a)	314	(a)
Pick-up balers (including roto-balers)	3,432	3,461	3,624	3,845	3,905
Forage harvesters	530	494	547	558	614
Potato diggers	383	(a)	(a)	455	(a)
Tractors—					
Wheeled	(a)	28,706	(a)	(a)	31,388
Crawler	(a)	3,606	(a)	(a)	3,617
Total	32,028	32,312	33,997	35,158	35,005
Miscellaneous machines—					
Hammer mills (including roughage mills)	1,639	(a)	(a)	1,921	(a)
Milking machine units	10,055	9,780	9,664	9,317	9,036
Shearing machine stands	21,517	22,486	23,431	24,799	25,355

(a) Not available.

(b) Includes headers but excludes clover seed harvesters.

## CLASSIFICATION OF RURAL HOLDINGS

Some of the information from the 1965-66 Agricultural and Pastoral Census was classified by size of principal characteristics (area of holdings, area of established pasture, area of selected crops and numbers of livestock). In addition all holdings were classified according to type of activity. Tables showing this information together with definitions and an outline of methods used have been published by the Commonwealth Bureau of Census and Statistics, Canberra in a series of bulletins, *Classification of Rural Holdings by Size and Type of Activity*, 1965-66.

Selected size classification tables for Western Australia are published elsewhere in this Part and the type of activity classifications for the State are shown below and on pages 336-7.

**HOLDINGS CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
NUMBER AND AREA USED FOR VARIOUS PURPOSES—SEASON 1965-66**

Type of activity	Number of holdings	Total area of holdings	Area used for—				
			Fruit	Crops (excluding fruit)	Fallow	Established pasture	Balance of holding
		acres	acres	acres	acres	acres	acres
Sheep—Cereal grain .....	6,845	24,673,659	62	5,895,532	1,100,363	6,381,591	11,296,111
Sheep .....	3,314	159,193,968	2,161	306,015	88,436	2,958,599	155,838,757
Cereal grain .....	1,940	7,390,845	.....	2,033,972	575,235	319,704	4,461,934
Cattle (meat production) .....	1,224	68,879,492	562	19,842	11,653	559,429	68,288,006
Cattle (milk production) .....	1,420	659,672	493	9,876	2,219	390,919	256,165
Vineyards .....	229	15,245	5,431	232	553	2,878	6,151
Fruit (other than vine) .....	885	154,379	15,430	1,625	1,282	64,417	71,625
Vegetables—Potatoes .....	307	81,840	882	6,062	843	34,722	39,331
Other and mixed .....	721	22,791	611	6,226	1,417	2,841	11,696
Poultry .....	407	17,891	449	1,128	334	3,402	12,578
Pigs .....	160	41,187	80	3,312	774	10,242	26,779
Other .....	172	158,071	125	15,319	8,984	40,208	93,435
Multi-purpose .....	539	815,131	3,266	98,268	14,505	355,760	343,332
<b>Total, classified holdings</b>	<b>18,163</b>	<b>262,104,171</b>	<b>29,552</b>	<b>8,397,409</b>	<b>1,806,598</b>	<b>11,124,712</b>	<b>240,745,900</b>
Unclassified holdings—							
Sub-commercial .....	3,366	6,071,797	4,966	14,093	26,736	150,985	5,875,017
Unused, special, etc. ....	1,324	1,878,483	412	3,399	108,891	106,486	1,659,295
<b>Total, all rural holdings</b>	<b>22,853</b>	<b>270,054,451</b>	<b>34,930</b>	<b>8,414,901</b>	<b>1,942,225</b>	<b>11,382,183</b>	<b>248,280,212</b>

**HOLDINGS WITH PIG HERDS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
AND SIZE OF HERD—SEASON 1965-66**

Type of activity	Size of pig herd (numbers)									Total
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	
Sheep—Cereal grain .....	136	165	195	152	265	210	128	298	82	1,631
Sheep .....	59	34	36	26	42	34	23	44	6	304
Cereal grain .....	29	33	30	24	78	48	29	80	35	386
Cattle (meat production) .....	17	8	7	8	15	6	2	6	3	72
Cattle (milk production) .....	53	55	54	43	62	52	32	74	15	440
Vineyards .....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Fruit (other than vine) .....	20	7	3	2	3	2	1	3	1	42
Vegetables—Potatoes .....	13	1	5	3	4	1	.....	1	1	29
Other and mixed .....	10	2	.....	.....	1	1	1	.....	.....	15
Poultry .....	7	6	.....	1	4	3	.....	2	3	27
Pigs .....	.....	.....	.....	.....	2	6	8	66	78	160
Other .....	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Multi-purpose .....	18	13	7	8	29	21	16	43	30	185
<b>Total, classified holdings</b>	<b>365</b>	<b>324</b>	<b>337</b>	<b>267</b>	<b>505</b>	<b>384</b>	<b>241</b>	<b>617</b>	<b>254</b>	<b>3,294</b>
Unclassified holdings—										
Sub-commercial .....	82	48	34	31	28	16	4	.....	.....	243
Unused, special, etc. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<b>Total, all rural holdings</b>	<b>447</b>	<b>372</b>	<b>371</b>	<b>298</b>	<b>533</b>	<b>400</b>	<b>245</b>	<b>617</b>	<b>254</b>	<b>3,537</b>

In the first table on page 335, the number and area of rural holdings used for various purposes are shown. Of the 22,853 rural holdings of all types in the State, sheep and cereal grain was the principal activity of 6,845 or 30 per cent of the total. The greatest area was occupied by holdings with sheep as the principal activity, which accounted for 59 per cent of the total area of all holdings, followed by cattle for meat production with 26 per cent.

The second table on page 335 shows, for holdings with pig herds, the size of the herd for each type of activity. Pig raising was associated principally with the activity sheep and cereal grain, with cattle for milk production next in importance.

Of the 9,267 holdings growing wheat for grain, 6,560 or over 71 per cent were combined with sheep as the principal activity, as shown in the following table. Cereal grain was the next most important activity associated with the growing of wheat for grain, accounting for 1,913 or over 71 per cent of the remaining 2,707 holdings.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO  
TYPE OF ACTIVITY AND AREA—SEASON 1965-66

Type of activity	Area of wheat for grain (acres)									Total
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	
Sheep—Cereal grain ....	403	607	624	709	702	1,224	1,043	1,041	207	6,560
Sheep ....	371	66	26	10	1	1	1	1	1	475
Cereal grain ....	40	109	151	163	151	257	357	528	157	1,913
Cattle (meat production) ....	8	5	....	2	....	....	....	1	....	16
Cattle (milk production) ....	....	1	....	....	....	....	....	....	....	1
Vineyards ....	2	....	....	....	....	....	....	....	....	2
Fruit (other than vine) ....	1	....	....	....	....	....	....	....	....	1
Vegetables—Potatoes ....	....	....	....	....	....	....	....	....	....	....
Other and mixed ....	2	....	....	....	....	....	....	....	....	2
Poultry ....	....	2	....	....	....	....	....	....	....	4
Pigs ....	10	3	....	1	1	....	....	....	....	15
Other ....	4	1	2	3	....	....	....	9	....	10
Multi-purpose ....	56	31	31	17	12	7	13	9	....	176
Total, classified holdings	899	825	834	905	867	1,488	1,414	1,579	364	9,175
Unclassified holdings—	....	....	....	....	....	....	....	....	....	....
Sub-commercial ....	90	2	....	....	....	....	....	....	....	92
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	989	827	834	905	867	1,488	1,414	1,579	364	9,267

In the following table, holdings with sheep flocks have been classified according to the size of flock for each type of activity.

HOLDINGS WITH SHEEP FLOCKS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
AND SIZE OF FLOCK—SEASON 1965-66

Type of activity	Size of sheep flock (numbers)									Total
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over	
Sheep—Cereal grain ....	69	227	426	974	1,385	1,578	1,292	633	193	6,777
Sheep ....	34	192	231	318	381	502	692	436	492	3,278
Cereal grain ....	189	176	179	221	168	84	32	9	4	1,062
Cattle (meat production) ....	246	63	50	39	32	21	10	8	1	470
Cattle (milk production) ....	266	24	6	2	2	....	....	1	....	301
Vineyards ....	17	....	....	....	....	....	....	....	....	17
Fruit (other than vine) ....	96	34	17	17	6	3	1	2	....	176
Vegetables—Potatoes ....	33	5	6	5	1	1	....	....	....	51
Other and mixed ....	8	2	....	....	....	....	....	....	....	10
Poultry ....	31	2	....	1	....	1	....	....	....	35
Pigs ....	49	2	4	4	1	....	....	....	....	60
Other ....	10	5	6	7	6	5	2	2	....	43
Multi-purpose ....	84	62	75	66	62	60	40	21	7	477
Total, classified holdings	1,132	794	1,000	1,654	2,044	2,255	2,069	1,112	697	12,757
Unclassified holdings—	....	....	....	....	....	....	....	....	....	....
Sub-commercial ....	720	34	....	....	....	....	....	....	....	754
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511





YOUNG CATTLE ON A FARM NEAR BUSSELTION IN THE SOUTH-WEST

Holdings running cattle for milk production are classified in the following table according to size of herd for each type of activity.

Of the 3,685 rural holdings on which cattle for milk production were held, 1,260 or over 34 per cent ran herds of less than five cattle. Where cattle for milk production was the principal activity on the holding, there were more herds of between sixty and seventy-nine cattle than any other size classification.

HOLDINGS WITH CATTLE (MILK PRODUCTION) HERDS (a)  
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965-66

Type of activity	Size of cattle herd (milk production) (numbers)									Total
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	
Sheep—Cereal grain ....	581	43	15	1	2	2	....	....	....	644
Sheep ....	214	16	11	20	24	10	3	5	1	304
Cereal grain ....	77	4	3	....	....	....	1	....	....	85
Cattle (meat production) ....	94	10	7	20	22	29	19	33	14	248
Cattle (milk production) ....	5	2	15	77	191	342	229	317	242	1,420
Vineyards ....	2	....	....	....	....	....	....	....	....	2
Fruit (other than vine) ....	32	7	6	29	22	11	1	5	....	113
Vegetables—Potatoes ....	10	5	7	28	19	15	11	9	....	104
Other and mixed ....	7	2	2	1	3	....	....	....	....	15
Poultry ....	15	1	5	....	1	....	....	....	....	22
Pigs ....	8	....	....	....	....	....	....	....	....	8
Other ....	1	....	1	....	....	....	....	1	....	4
Multi-purpose ....	43	4	6	23	29	32	23	20	7	187
Total, classified holdings	1,089	94	78	199	313	442	287	390	264	3,156
Unclassified holdings—										
Sub-commercial ....	168	48	58	138	107	7	....	....	....	526
Unused, special, etc. ....	3	....	....	....	....	....	....	....	....	3
Total, all rural holdings	1,260	142	136	337	420	449	287	390	264	3,685

(a) Excludes holdings with no cattle for milk production other than house cows.

Of the 8,304 holdings running cattle for meat production, 3,936 were associated with either sheep or sheep and cereal grain as the principal activity. A further 853 holdings were associated with the running of cattle for milk production. Herds of 1,000 or more cattle for meat production were found on 107 holdings.

HOLDINGS WITH CATTLE (MEAT PRODUCTION) HERDS  
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965-66

Type of activity	Size of cattle herd (meat production) (numbers)									Total
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	
Sheep—Cereal grain ....	1,053	367	230	255	224	79	21	10	1	2,240
Sheep ....	368	184	163	285	402	190	49	43	12	1,696
Cereal grain ....	127	32	10	11	15	3	2	1	....	201
Cattle (meat production) ....	....	....	10	103	378	347	132	161	93	1,224
Cattle (milk production) ....	229	184	119	131	120	50	9	11	....	853
Vineyards ....	13	4	2	5	1	....	....	....	....	26
Fruit (other than vine) ....	78	42	30	51	42	16	5	1	....	265
Vegetables—Potatoes ....	29	31	14	30	37	23	5	1	....	170
Other than mixed ....	15	7	3	10	5	....	....	....	....	40
Poultry ....	35	13	3	5	2	....	....	....	....	58
Pigs ....	22	12	10	6	5	1	....	....	....	56
Other ....	11	1	3	1	....	....	....	....	....	16
Multi-purpose ....	46	48	47	64	117	74	27	14	1	438
Total, classified holdings	2,026	925	644	957	1,348	784	250	242	107	7,283
Unclassified holdings—										
Sub-commercial ....	491	249	147	119	....	6	4	5	....	1,021
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304

## VALUE OF PRODUCTION

For primary production the *gross value* is based on the wholesale price realised 'at the principal market'. Where primary products are consumed at the place of production or where they become raw material for secondary industry within the State, these points of consumption are taken as the 'principal market'. *Net value* represents the return to the producer after the cost of all goods consumed in the process of production and the costs of marketing the product have been deducted from the gross value. It is consequently the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.

Net values of production of the various primary industries during the five years ended 1968-69 are given in the following table. An effective comparison of the relative importance of the individual primary industries is provided by the five-yearly averages quoted, as they tend to lessen the effect on the statistics of unusual seasonal or other conditions occurring in particular years. Although agriculture had the highest average net value of production over the five years shown in the table, the increasing importance of mining and quarrying is clearly evident. In 1968-69 both the pastoral industry and mining and quarrying were relatively more important than agriculture.

## NET VALUE OF RECORDED PRIMARY PRODUCTION

Industry	1964-65	1965-66	1966-67	1967-68	1968-69	Average of five years
VALUE (\$'000)						
Agriculture ....	92,800	154,494	153,717	162,043	136,355	139,882
Pastoral ....	101,069	129,773	126,049	119,231	168,728	128,970
Dairying ....	12,601	13,031	11,060	11,820	12,909	12,284
Poultry farming ....	1,589	3,253	3,801	2,492	4,111	3,049
Bee keeping ....	519	643	442	219	503	465
Trapping ....	678	662	758	900	813	762
Forestry ....	11,334	11,965	12,473	13,273	12,591	12,327
Fishing and whaling ....	13,973	14,478	14,975	20,419	22,239	17,217
Mining and quarrying ....	32,163	35,192	63,097	110,267	168,597	81,863
Total ....	266,726	363,490	386,372	440,663	526,846	396,819

## PROPORTION OF TOTAL (PER CENT)

Agriculture ....	34.79	42.50	39.78	36.77	25.88	35.25
Pastoral ....	37.89	35.70	32.62	27.06	32.03	32.50
Dairying ....	4.72	3.58	2.86	2.68	2.45	3.10
Poultry farming ....	0.60	0.89	0.98	0.57	0.78	0.77
Bee keeping ....	0.19	0.18	0.11	0.05	0.10	0.12
Trapping ....	0.25	0.18	0.20	0.20	0.15	0.19
Forestry ....	4.25	3.29	3.23	3.01	2.39	3.11
Fishing and whaling ....	5.24	3.98	3.88	4.63	4.22	4.34
Mining and quarrying ....	12.06	9.68	16.33	25.02	32.00	20.63
Total ....	100.00	100.00	100.00	100.00	100.00	100.00

The following table shows the gross and net values of production of the various primary industries in 1968-69. The '*local value*' which is quoted is the value at the source of production and is obtained by deducting marketing costs from the gross value. Marketing costs comprise freight, cost of containers, commission, and other charges incurred in marketing. Gross values provide a reliable measure of the value of production of any particular item or industry but net value of primary production should be used when comparing or combining values for primary industries with those for secondary industry.



**PRIMARY INDUSTRIES—VALUE OF PRODUCTION: 1968-69**  
(S'000)

Industry	GROSS VALUE (based on principal market prices)	Marketing costs	LOCAL VALUE (as at source of production)	Cost of goods consumed in process of production	NET VALUE
Agriculture .....	218,643	37,371	181,272	44,917	136,355
Pastoral .....	210,780	15,480	195,300	26,572	168,728
Dairying .....	25,101	1,340	23,762	10,853	12,909
Poultry farming .....	13,158	612	12,546	8,434	4,111
Bee keeping .....	542	40	503	(a)	503
Trapping .....	1,211	398	813	(a)	813
Forestry .....	13,465	874	12,591	(a)	12,591
Fishing and whaling .....	23,717	118	23,600	1,361	22,239
Mining and quarrying .....	223,819	28,499	195,320	26,723	168,597
Total .....	730,436	84,732	645,706	118,860	526,846

(a) Not available.

Gross values of the principal items are shown in the next table for each of the years 1964-65 to 1968-69.

**PRIMARY PRODUCTION—GROSS VALUES OF PRINCIPAL ITEMS**  
(S'000)

Industry and commodity	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Agriculture—</b>					
Wheat .....	88,557	153,050	153,157	170,102	151,306
Oats .....	9,888	18,403	15,800	14,106	12,978
Barley .....	3,940	7,297	7,476	7,690	8,619
Hay (all kinds) .....	9,287	8,457	8,985	9,557	10,132
Pasture seed (a) .....	2,677	4,247	4,180	4,289	3,547
Cotton .....	1,065	1,872	2,393	1,892	1,681
Vegetables .....	11,059	11,314	12,712	12,700	13,499
Fruit, orchard (b) .....	10,323	8,834	11,216	11,102	13,503
Vine fruits .....	1,395	1,173	1,025	1,092	1,336
Nursery products (c) .....	805	925	894	910	1,138
<b>Pastoral—</b>					
Wool (shorn and dead) (d) .....	92,668	114,419	120,742	115,976	157,789
Livestock slaughtered (e) .....	34,720	44,110	41,577	43,345	51,662
<b>Dairying—</b>					
Whole milk (f) .....	15,819	16,220	15,087	15,335	16,697
Livestock slaughtered (g) .....	6,752	6,674	6,755	8,767	8,368
<b>Poultry farming—</b>					
Eggs (h) .....	3,884	4,735	4,784	5,064	5,785
Poultry slaughtered .....	3,139	3,666	4,922	5,501	6,412
<b>Bee keeping (i) .....</b>	<b>562</b>	<b>701</b>	<b>484</b>	<b>240</b>	<b>542</b>
<b>Trapping .....</b>	<b>775</b>	<b>836</b>	<b>986</b>	<b>1,236</b>	<b>1,211</b>
<b>Forestry .....</b>	<b>12,093</b>	<b>12,731</b>	<b>13,300</b>	<b>14,076</b>	<b>13,465</b>
<b>Fishing—</b>					
Prawns .....	592	1,053	1,778	1,566	1,802
Rock lobsters .....	11,192	11,388	11,344	16,863	17,801
Scale fish .....	1,300	1,236	1,013	1,100	922
Pearls and pearl-shell (j) .....	183	259	292	359	334
<b>Mining and quarrying—</b>					
Gold (k) .....	23,466	22,285	23,243	21,618	19,539
Asbestos .....	2,212	2,032	2,434	3	3
Coal .....	4,679	4,410	4,562	4,765	4,817
Ilmenite concentrates .....	2,812	4,332	4,802	*5,182	5,357
Iron ore .....	2,771	4,662	33,772	84,358	131,939
Manganese ore .....	1,416	2,106	4,091	4,466	3,135
Pyritic ore and concentrates .....	1,109	1,048	1,070	1,113	421
Quarry products .....	6,550	7,883	8,881	*8,760	11,031
Tin concentrate .....	1,241	1,559	2,072	2,198	1,658
Zircon concentrates .....	435	687	899	1,193	889

(a) Comprises clover, medics, lupins, rye grass and other pasture seeds. (b) Includes plantation and berry fruits.  
(c) Value of seedlings, cut flowers, bulbs, trees, etc. produced. (d) The value of fellmongered wool and wool exported on skins is included in the value of livestock slaughtered which has been computed from prices of livestock 'on hoof' and therefore includes a value for wool on skins. (e) Comprises cattle, sheep and lambs. (f) Includes Commonwealth Government subsidy. (g) Comprises calves and pigs. (h) Excludes value of non-commercial production. (i) Excludes value of production of bee keepers with less than five hives. (j) Excludes culture pearls. (k) Includes net subsidy payments by the Commonwealth Government and amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold.

\* Revised.

## SUMMARY OF AUSTRALIAN STATISTICS

The following table contains a selection of the principal statistics of primary production in each of the Australian States for 1968-69.

## PRINCIPAL STATISTICS OF PRIMARY PRODUCTION—AUSTRALIA: 1968-69

Particulars	Unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Rural holdings—								
Number .....	.....	76,103	71,056	44,074	29,137	23,004	10,384	254,270
Area .....	'000 acres	171,020	39,182	378,956	162,109	276,174	6,591	1,212,320
Principal crops—								
Wheat for grain—								
Area .....	'000 acres	9,962	3,984	1,789	3,748	7,295	17	26,799
Production .....	'000 bush	215,119	90,728	42,000	83,160	112,450	410	543,950
Oats for grain—								
Area .....	'000 acres	1,185	991	55	516	1,092	31	3,872
Production .....	'000 bush	27,454	30,230	1,119	11,895	22,942	583	94,250
Barley for grain—								
Area .....	'000 acres	486	409	427	1,412	553	26	3,314
Production .....	'000 bush	11,211	8,885	12,870	29,551	9,187	884	72,587
Hay—all types—								
Area .....	'000 acres	823	1,847	112	615	341	211	3,955
Production .....	'000 tons	1,439	3,635	263	985	501	494	7,330
Pasture seed .....	'000 lb	6,657	5,905	4,615	8,929	29,106	1,636	57,474
Cotton—								
Area .....	'000 acres	60	.....	(b) 12	.....	8	.....	80
Production .....	'000 lb	173,759	.....	(c) 23,363	.....	21,560	.....	218,682
Onions—								
Area .....	acre	1,520	3,634	3,756	1,883	359	155	(d) 11,307
Production .....	ton	11,084	21,282	28,365	18,639	5,494	1,281	(d) 86,145
Potatoes—								
Area .....	acre	29,236	39,979	18,515	7,643	6,588	11,461	(d) 113,437
Production .....	ton	160,823	299,961	122,990	68,018	74,435	72,120	(d) 798,478
Other vegetables—								
Area .....	acre	44,686	52,042	57,557	9,997	7,906	21,521	194,058
Apples—								
Area .....	acre	18,826	21,110	13,801	5,869	15,165	18,159	92,957
Production .....	'000 bush	3,701	4,858	2,043	1,561	2,870	7,138	22,174
Oranges—								
Area .....	acre	27,801	6,704	3,533	17,115	4,506	.....	59,702
Production .....	'000 bush	5,657	1,360	865	3,703	551	.....	12,137
Other fruit—								
Area .....	acre	48,058	43,784	35,416	21,513	5,695	3,270	157,788
Vineyards—								
Area .....	acre	22,749	48,970	3,508	60,574	7,270	.....	143,071
Grapes for table .....	ton	7,470	6,939	5,913	587	1,729	.....	22,638
Wine made .....	'000 gal	8,597	6,241	32	36,230	837	.....	51,936
Currants .....	ton	428	2,687	.....	2,261	1,862	.....	7,238
Sultanas and raisins .....	ton	7,829	37,896	.....	1,743	8	.....	47,476
Livestock numbers, 31 March 1969—								
Sheep and lambs .....	'000	68,153	30,185	20,324	18,392	32,901	4,395	174,602
Cattle .....	'000	4,864	3,878	7,668	865	1,546	586	20,598
Pigs .....	'000	690	422	535	288	220	95	2,253
Livestock slaughtered for human consumption—								
Sheep .....	'000	5,809.7	5,843.2	2,054.2	1,520.7	2,379.0	567.5	18,234.4
Lambs .....	'000	7,140.7	7,038.3	670.3	1,455.8	1,429.5	673.4	18,478.0
Cattle .....	'000	1,033.3	1,020.3	1,500.0	173.1	346.2	132.5	4,295.1
Calves .....	'000	383.6	494.0	323.2	46.7	19.9	45.2	1,313.2
Pigs .....	'000	1,008.1	771.3	799.9	316.6	262.7	139.0	3,310.2
Wool production .....	'000 lb	673,531	364,347	247,005	238,120	375,650	46,955	1,947,778
Whole milk production—								
All purposes .....	'000 gal	278,930	815,791	171,686	102,808	58,222	102,164	1,530,597
Fisheries production—								
Fish—live weight .....	'000 lb	36,539	23,568	8,633	19,965	12,425	6,108	107,821
Crustaceans—								
gross weight .....	'000 lb	4,228	1,585	10,792	6,515	21,914	3,747	51,158
Gold : mine production (e) .....	fine oz	*8,668	*11,069	*82,939	38	*515,950	*36,509	*781,782
Iron ore (e) .....	'000 tons	.....	.....	.....	6	18,828	* (f) 869	*26,204
Gross value of production—								
Agriculture .....	\$'000	542,184	331,715	363,704	221,097	218,643	44,599	1,723,245
Pastoral .....	\$'000	445,340	345,275	340,022	136,070	210,780	39,117	1,536,817
Dairying .....	\$'000	154,840	202,245	64,267	39,016	25,101	27,713	513,742
Poultry farming .....	\$'000	77,241	46,820	23,629	12,064	13,158	5,894	179,160
Bee keeping .....	\$'000	1,022	558	193	595	542	102	3,021
Trapping .....	\$'000	4,291	3,623	1,542	1,000	1,211	369	12,083
Forestry .....	\$'000	34,358	29,920	18,411	8,518	13,465	15,885	121,166
Fishing and whaling .....	\$'000	11,461	5,851	8,089	7,683	23,717	4,864	62,856
Mining and quarrying (g) .....	\$'000	300,005	59,026	191,152	42,064	195,320	44,968	858,576

(a) Includes Northern Territory and Australian Capital Territory except where indicated; see footnote (d). (b) Sown 1967-68. (c) Harvested from crop sown in 1967-68. (d) Incomplete. Excludes Northern Territory and/or Australian Capital Territory. (e) Year, 1968. (f) Iron concentrate. (g) Local value. For definition, see letterpress at the foot of page 338. \* Revised.

## SEASONAL CALENDAR

The following calendar is intended to show the main periods when principal agricultural and pastoral activities are carried out in Western Australia. Operations are generally confined to the periods shown but are subject to variation according to such factors as geographical location within the State, the variety of seed sown (or trees and vines planted) and exceptional seasonal conditions.

## SEASONAL CALENDAR

Item	Period	
	Sowing or planting	Harvesting
Pastures—		
Clovers ....	April to June ....	December to April
Medics ....	April to June ....	December to April
Grain—		
Wheat ....	May to June ....	November to January
Oats ....	April to June ....	November to December
Barley ....	April to June ....	November to December
Rice—		
Wet season crop ....	November to December	May to June
Dry season crop ....	May	October
Rye ....	April to June ....	November to December
Hay—		
Wheaten ....	May to June ....	October to November
Oaten ....	May to August....	October to November
Cotton ....	November to February	May to October
Linseed ....	May to June ....	December to January
Vegetables—		
Beans, Runner—		
Carnarvon area ....	March to September ....	May to November
Perth Division ....	August to March ....	November to June
Green Peas—		
For processing ....	May to September ....	October to December
Fresh ....	May to October ....	August to December
Potatoes—		
Early planting—		
Perth and South-West ....	June to July ....	October to November
Mid-season planting—		
Perth, South-West and Southern Agricultural	July to November ....	November to March
Late planting—		
South-West and Southern Agricultural ....	November to February	February to May
Onions ....	June to August....	December to March
Tomatoes—		
Carnarvon and Geraldton areas ....	February to April	May to November
Other areas ....	June to December	October to May
Fruit—		
Apples ....	June to August....	February to May
Apricots ....	July ....	December to January
Bananas ....	September ....	September to May
Lemons ....	July to August ....	July to June
Mandarins ....	July to August ....	May to September
Nectarines ....	July ....	January to February
Olives ....	July to August ....	March to April
Oranges, Navel ....	July to August ....	May to September
Oranges, Valencia ....	July to August ....	August to February
Peaches ....	July ....	December to February
Pears ....	June to July ....	January to March
Plums ....	June to July ....	December to March
Grapes—		
For table use ....	June to September	January to April
For wine making ....	June to September	February to April
For drying ....	June to September	February to March
Shearing and lambing—		
Shearing—		
Pastoral areas ....	March to August	
Agricultural areas ....	February to November	
Lambing—		
Pastoral areas ....	April to July	
Agricultural areas ....	April to September	

## BUSHEL WEIGHTS

The production of cereals, fruit and certain other commodities is generally recorded in bushels. While the weight of a bushel varies according to the nature of the product, it is also subject to considerable variation on account of such factors as method of pack-

ing and size and variety within each kind of product. The average bushel equivalent weights set out below may be used to convert production to pounds weight avoirdupois.

Product	Weight per bushel	Product	Weight per bushel	Product	Weight per bushel
Apples ....	42	Linseed ....	56	Peaches ....	45
Apricots ....	48	Loquats ....	45	Pears ....	45
Bananas ....	56	Maize ....	56	Peas, Field ....	60
Barley ....	50	Mandarins ....	48	Plums ....	58
Cherries ....	48	Nectarines ....	50	Quinces ....	42
Clover Seed ....	60	Oats ....	40	Rice ....	42
Figs ....	44	Olives ....	56	Rye ....	60
Grapefruit ....	42	Oranges ....	48	Tomatoes ....	44
Lemons ....	48	Passion Fruit ....	34	Wheat ....	60

## AGRICULTURE

### Wheat

Wheat has been grown from the earliest years of settlement and a brief synopsis of the development of production is given in the *Western Australian Year Book*, No. 7-1968 and earlier issues. By 1968, the area of land sown to wheat had increased to 7.3 million acres from which a record harvest of 112.4 million bushels was obtained for an average yield of 15.4 bushels per acre.

Mechanisation has been of great importance in the growth of wheat farming in Western Australia owing to the relatively low yield per acre obtained.

Most of Western Australia's wheat production is exported as grain and flour and in the following table the fluctuations which have occurred in exports since 1910 are shown, together with figures giving the estimated total wheat equivalent. The United Kingdom has been the most consistent purchaser of the State's wheat, but since 1961-62 China (mainland) and Japan have been the most important customers and in 1968-69 they took 22.2 million and 20.5 million bushels, respectively, their purchases together accounting for 76 per cent of the State's total wheat exports. In that year other principal buyers, in order of importance, were India, Malaysia and the United Kingdom. In the same year principal customers for flour were Ceylon, the Trucial States, Muscat, Oman and Qatar. Further details of exports appear in Chapter IX, Part 1.

### EXPORTS OF WHEAT AND FLOUR

Year	Wheat	Flour (a)	Estimated total wheat equivalent
	bushels	short tons (b)	bushels
1910 ....	2,014,552	2,821	2,147,139
1919-20....	9,151,125	129,250	15,225,875
1929-30....	24,953,238	69,070	28,199,528
1939-40....	15,330,423	91,667	19,633,772
1949-50....	21,510,390	115,814	26,953,648
1959-60....	36,713,316	87,851	40,842,313
1964-65....	40,507,154	92,402	44,850,048
1965-66....	69,371,600	54,157	71,916,979
1966-67....	84,980,233	38,365	86,783,388
1967-68....	*87,199,586	*46,207	*89,371,315
1968-69....	55,900,870	38,691	57,719,347

(a) Ships' stores are excluded from figures for 1959-60 and subsequent years.

(b) Short ton = 2,000 lb.

\* Revised.

The next table gives details of areas sown and wheat produced since 1900.

WHEAT FOR GRAIN—AREA AND PRODUCTION

Season	Area sown	Production		
		Total	Average yield per acre	Gross value
1900-01	acres 74,308	bushels 774,653	bushels 10·4	\$ 309,862
1910-11	581,862	5,897,540	10·1	2,162,432
1920-21	1,275,675	12,248,080	9·6	11,023,272
1930-31	3,955,763	53,504,149	13·5	12,201,176
1940-41	2,625,401	21,060,000	8·0	8,647,906
1950-51	3,185,389	49,900,000	15·7	65,328,246
1960-61	4,021,225	63,900,000	15·9	92,290,238
1964-65	5,151,267	63,071,000	12·2	88,556,922
1965-66	6,149,727	102,156,000	16·6	153,049,650
1966-67	6,346,613	103,195,000	16·3	153,157,379
1967-68	6,647,095	106,975,000	16·1	170,101,782
1968-69	7,295,094	112,450,000	15·4	151,305,976

The rapid increase in the production and export of wheat between 1910 and 1920 caused problems of transport and storage, and proposals for the bulk handling of the grain led to the formation of a company for this purpose in 1920. This original undertaking was wound up before commencing operations because the technical difficulties then appeared too great and the saving in handling costs problematical. In 1930, however, the idea of handling wheat in bulk was revived and a cheaper method was tested with storage bins at five railway sidings in the Wyalkatchem area during the 1931-32 season. The experiment was successful and despite some opposition to the scheme, the legislature passed the Bulk Handling Act in 1935 to regulate the handling of wheat in bulk. Under the provisions of this Act, an incorporated co-operative company (Co-operative Bulk Handling Limited) was granted the sole right of handling and arranging transport of wheat in bulk in the State. The company, which was formed in 1933 and had taken over the five experimental bulk facilities, progressively extended bulk handling services to 300 country centres. These services include facilities at various centres not serviced by rail transport.

In addition, Co-operative Bulk Handling Limited provided and operates transfer depots for handling grain from narrow gauge to standard gauge railway wagons at Merredin, Northam and Midland as well as grain terminals for shipping at the ports of Geraldton, Fremantle, Bunbury, Albany and Esperance. At 30 September 1970 total permanent storage in the country was 104·4 million bushels and at the ports 53·7 million bushels.

Co-operative Bulk Handling Limited has completed the first stage of a modern deep-draft bulk loading terminal at Kwinana. This involved the construction of a horizontal storage unit of 10·5 million bushels capacity and wheat receivals commenced on 1 December 1969. When completed, the terminal will have a capacity of 50 million bushels and be capable of loading at a rate of 4,000 tons an hour.

The Australian Wheat Board is the sole authority for the marketing of wheat within Australia and of wheat and flour for export. It derives its authority from the provisions of the Wheat Stabilization Plan 1968-69 to 1972-73 established under joint Commonwealth and State legislation to replace similar legislation which expired after the marketing of the 1967-68 crop. The principal object of the Plan is to ensure that growers receive a satisfactory income from their wheat and this is achieved by a guaranteed return based on an export price as determined and applicable on up to 200 million bushels of wheat exported each season from Australia. This required the establishment of a fund by levying under authority of the *Wheat Export Charge Act* 1968 (Commonwealth), a tax on exports for which a price in excess of the guaranteed price is received. Should the price obtained fall below the guaranteed price it is provided that the difference shall be paid



from the fund or, if that source is exhausted, by the Commonwealth Government. A further provision with a stabilising effect on the industry fixes the price at which wheat for home consumption may be sold.

By virtue of the *Wheat Industry Stabilization Act* 1968-1970 (Commonwealth) and of the *Bulk Handling Act*, 1967, Co-operative Bulk Handling Limited acts as the licensed receiver for the Australian Wheat Board and handles all wheat produced for marketing in Western Australia.

Under the provisions of the *Wheat Tax Act* 1957-1966 (Commonwealth), a levy of ¼c per bushel is made on wheat delivered to the Australian Wheat Board. This money, contributed by the growers, is spent by the Wheat Industry Research Council and State Wheat Research Committees set up under the provisions of the *Wheat Research Act* 1957. The Commonwealth Government has undertaken to supply additional funds, with a maximum of \$1 for every \$1 of growers' contributions.

**Wheat Delivery Quotas Plan.** The Australian Wheat Growers' Federation put forward proposals, in March 1969, for the allotment of quotas on deliveries of wheat to the Australian Wheat Board. The Federation's proposals were mainly designed to bring marketable supplies of wheat more into line with available outlets, following the record Australian and State harvests in 1968-69. The proposals which became effective for the 1969-70 harvest established for Western Australia a quota of 86 million bushels for deliveries of wheat for that season.

State Governments have the responsibility of implementing the quota plan within the States and separate enabling legislation has been enacted in each State. Particulars of the statutory provisions relating to the establishment in Western Australia of a quota scheme with respect to the delivery and marketing of wheat, are contained in the *Wheat Delivery Quotas Act*, 1969.

The States are responsible for determining the method of allocation of individual quotas within their respective boundaries. In Western Australia, allocation of individual quotas for farms for the season 1969-70 was made on the basis of the average for the farm of the best five deliveries made in the seven seasons from 1962-63 to 1968-69.

The *Wheat Delivery Quotas Act*, 1969 provides for the establishment of a Wheat Quotas Committee, consisting of three members appointed by the Minister for Agriculture. Subject to the direction of the Minister, the Committee is empowered under the Act to determine individual quotas for growers, but quotas may be reviewed by the Minister at any time.

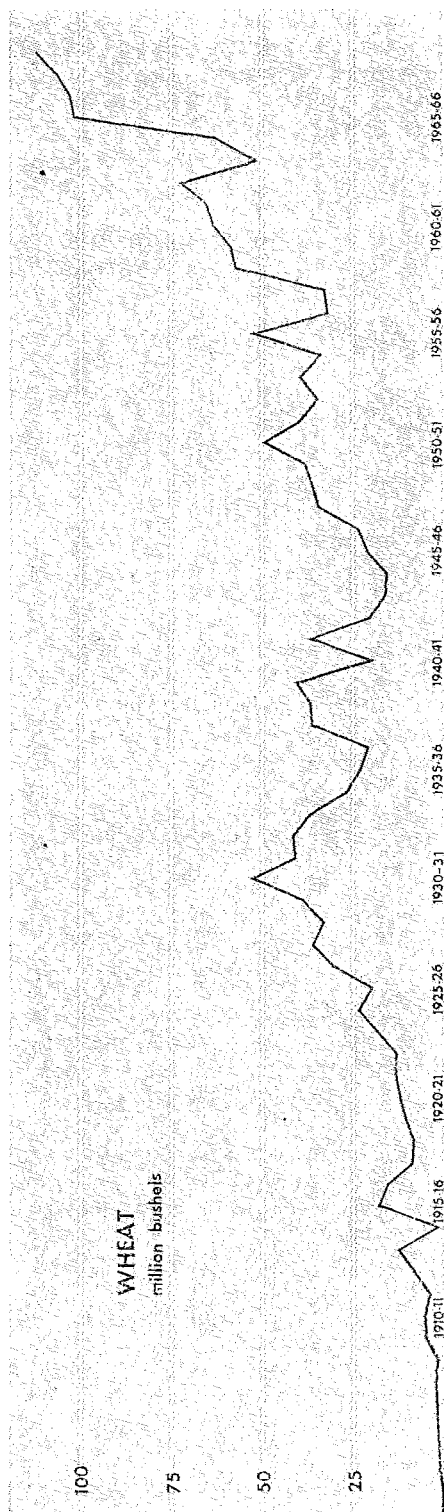
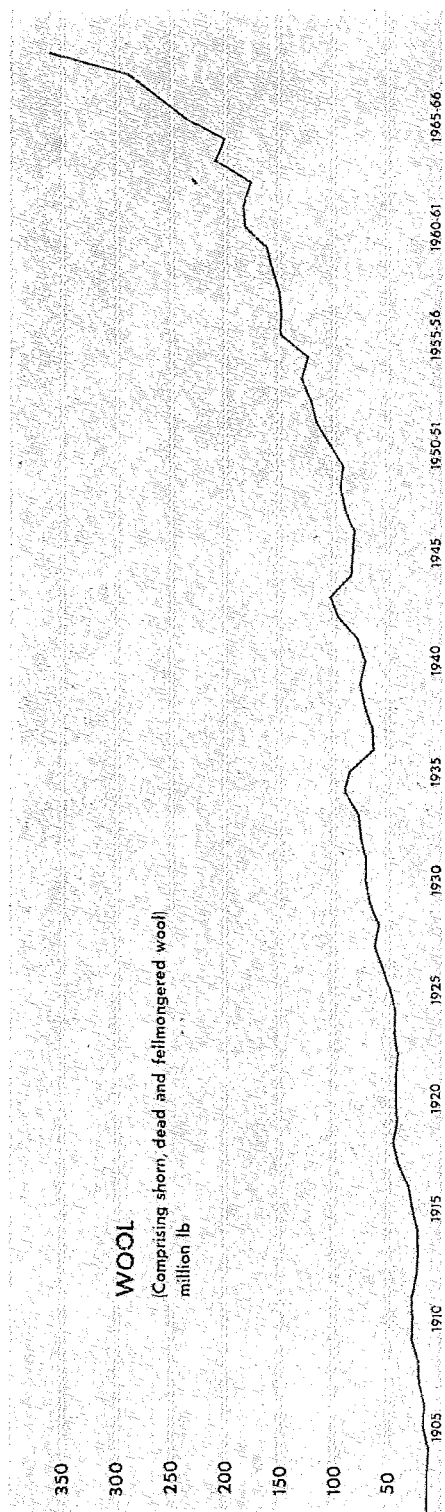
All wheat accepted as 'quota wheat' is the subject of normal Australian Wheat Board payments within the framework of the *Wheat Industry Stabilization Act* 1968-1970.

AREAS SOWN TO INDIVIDUAL VARIETIES OF WHEAT (a)

Variety	1964-65		1965-66		1966-67		1967-68		1968-69	
	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total
Bencubbin .....	200,305	3·8	178,555	2·9	139,896	2·2	150,864	2·3	121,890	1·7
Bungulla .....	403,361	7·8	394,811	6·4	284,746	4·5	201,377	3·0	180,294	2·5
Emblem .....	72	.....	940	.....	9,463	0·1	41,354	0·6	73,599	1·0
Falcon .....	18,949	0·4	72,000	1·2	326,822	5·1	762,920	11·4	1,120,160	15·3
Gabo .....	1,557,750	30·0	1,137,865	18·4	550,179	8·6	314,893	4·7	245,761	3·3
Gamenya .....	433,601	8·3	1,545,590	24·9	2,462,814	38·5	2,761,020	41·3	3,318,452	45·2
Gamut .....	.....	.....	2,646	.....	19,401	0·3	97,032	1·5	85,802	1·2
Heron .....	54,739	1·1	155,903	2·5	295,275	4·6	419,943	6·3	459,256	6·3
Insignia .....	892,403	17·2	1,053,935	17·0	971,886	15·2	922,987	13·8	816,809	11·1
Insignia 49 .....	653,356	12·6	665,907	10·7	611,523	9·6	551,172	8·2	539,015	7·3
Kondut .....	75,579	1·5	57,848	0·9	48,798	0·8	39,456	0·6	34,581	0·5
Mengavi .....	372,584	7·2	422,114	6·8	205,579	3·2	103,489	1·5	55,453	0·8
Olympic .....	40,882	0·8	59,975	1·0	59,961	0·9	53,631	0·8	58,960	0·8
Wongoody .....	219,536	4·2	183,295	3·0	94,559	1·5	59,645	0·9	42,011	0·6
Other varieties .....	276,950	5·3	264,464	4·3	311,548	4·9	211,756	3·2	185,454	2·5
<b>Total</b> .....	<b>5,200,067</b>	<b>100·0</b>	<b>6,195,848</b>	<b>100·0</b>	<b>6,392,450</b>	<b>100·0</b>	<b>6,691,539</b>	<b>100·0</b>	<b>7,337,497</b>	<b>100·0</b>

(a) For grain, hay and green fodder.

# Wool and Wheat—Annual Production, 1901 to 1968-69



In the next table, holdings growing wheat for grain in 1965-66, in size groups of the acreage sown, are classified according to the size of the holding. Of the 22,853 rural holdings of all types in the State, wheat for grain was grown on 9,267. Holdings of between 1,000 and 5,000 acres accounted for 76 per cent of this number and holdings which sowed between 200 and 1,000 acres represented 59 per cent.

Of the holdings growing wheat for grain all but 999 carried sheep and 55 per cent had flocks of between 500 and 2,000 sheep.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF HOLDING—SEASON 1965-66

Size of holding (acres)	Area of wheat for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	Total	
1- 49	11	....	....	....	....	....	....	....	....	11	3,915
50- 99	11	....	....	....	....	....	....	....	....	11	638
100- 149	15	....	....	....	....	....	....	....	....	15	661
150- 199	12	2	....	....	....	....	....	....	....	14	590
200- 299	21	11	1	....	....	....	....	....	....	33	1,058
300- 399	21	9	2	1	....	....	....	....	....	33	837
400- 499	21	9	3	1	1	....	....	....	....	35	632
500- 599	22	17	7	1	2	2	....	....	....	51	523
600- 699	32	16	12	4	2	....	....	....	....	66	516
700- 799	30	21	9	6	2	1	....	....	....	69	391
800- 899	39	24	23	12	3	6	1	....	....	108	378
900- 999	39	40	35	29	13	7	....	....	....	163	408
1,000-1,999	141	143	142	136	68	44	15	1	....	690	1,501
1,400-1,999	177	177	176	190	219	308	102	14	....	1,363	2,082
2,000-2,999	215	183	213	257	302	562	475	153	2	2,362	3,148
3,000-3,999	97	97	118	144	132	294	348	345	9	1,584	2,003
4,000-4,999	44	43	46	73	64	145	249	403	18	1,085	1,303
5,000-9,999	34	31	41	44	57	112	196	578	203	1,296	1,435
10,000 and over	7	4	6	7	4	5	28	85	132	278	834
Total ....	989	827	834	905	867	1,488	1,414	1,579	364	9,267	22,853

In the following table, details of area sown and wheat produced in each of the Australian States and the Australian Capital Territory are shown for the period 1964-65 to 1968-69.

WHEAT FOR GRAIN—AREA AND PRODUCTION: AUSTRALIAN STATES

Season	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australian Capital Territory	Australia
AREA SOWN TO WHEAT FOR GRAIN ('000 ACRES)								
1964-65	5,760	3,236	1,026	2,727	5,151	17	2	17,919
1965-66	4,577	3,074	954	2,745	6,150	14	1	17,515
1966-67	7,135	3,138	1,227	2,960	6,347	13	3	20,823
1967-68	8,215	3,224	1,477	2,864	6,647	12	2	22,441
1968-69	9,962	3,984	1,789	3,748	7,295	17	4	26,799
PRODUCTION OF WHEAT ('000 BUSHEL)								
1964-65	151,483	78,166	22,830	52,817	63,071	364	58	368,789
1965-66	39,117	60,591	17,429	39,976	102,156	368	28	259,666
1966-67	202,501	70,896	35,730	53,816	103,195	385	87	466,610
1967-68	87,323	28,317	27,417	26,899	106,975	316	42	277,289
1968-69	215,119	90,728	42,000	83,160	112,450	410	84	543,950
YIELD PER ACRE (BUSHEL)								
1964-65	26.3	24.2	22.3	19.4	12.2	21.7	27.6	20.6
1965-66	8.5	19.7	18.3	14.6	16.6	26.1	20.8	14.8
1966-67	28.4	22.6	29.1	18.2	16.3	30.2	32.5	22.4
1967-68	10.6	8.8	18.6	9.4	16.1	26.3	17.8	12.4
1968-69	21.6	22.8	23.5	22.2	15.4	23.6	20.1	20.3

## Oats

Although oats have been grown in Western Australia since the early development of wheat farming, cultivation was somewhat limited until stimulated by the introduction of large-scale sheep raising in the agricultural areas, when their high nutritional worth as stock feed made them a very valuable crop. The area sown to oats for grain increased from 193,486 acres in 1920 to 274,874 in 1930, to 429,177 in 1940, to 585,701 in 1950 and 1,329,804 in 1960. It then declined and in 1968 it was 1,092,469 acres.

In addition to their importance as local stock feed, oats are exported in substantial quantities. In 1968-69 the total sold overseas was 12,851,608 bushels, the principal buyers being Netherlands, the Federal Republic of Germany, Italy, Japan and the United Kingdom. Exports to other Australian States are negligible.

Although growers are free to market oats in any way they wish, in practice a large proportion of all sales, whether for export or the local market, is effected through the Western Australian State Voluntary Oats Pool, which is conducted by the Grain Pool of W.A. under the control of the Minister for Agriculture. Co-operative Bulk Handling Limited as the Pool's licensed receiver, handles all oats marketed through the Pool.

OATS FOR GRAIN—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$
1964-65	1,151,969	14,011,068	12.2	9,888,344
1965-66	1,240,104	23,278,721	18.8	18,402,831
1966-67	1,203,815	22,117,198	18.4	15,799,834
1967-68	1,158,114	19,759,430	17.1	14,106,123
1968-69	1,092,469	22,941,897	21.0	12,977,507

## Barley

Barley grows well on the lighter soils of the wheat belt. It is also successful as a first crop on newly-developed land, and the opening up of new areas for farming accounts partly for the remarkable increase in the area sown for grain from 56,574 acres in 1951-52 to a peak of 540,646 acres in 1960-61. Since then the area sown has fluctuated considerably with a new peak of 552,810 acres being reached in 1968-69.

BARLEY FOR GRAIN—AREA AND PRODUCTION

Season	Two-row				Six-row			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1964-65	57,982	613,580	10.6	813,422	244,651	3,087,435	12.6	3,126,212
1965-66	71,847	1,263,055	17.6	1,711,846	341,230	5,217,879	15.3	5,585,578
1966-67	72,190	1,450,153	20.1	1,927,087	300,909	5,257,331	17.5	5,548,775
1967-68	100,500	1,752,735	17.4	2,293,542	315,285	5,274,174	16.7	5,396,282
1968-69	198,260	3,712,281	18.7	3,956,665	354,550	5,474,833	15.4	4,661,940

Both 'two-row' and 'six-row' barley are grown and, while a large amount of the grain produced is retained on farms for stock feed, a significant surplus is available for export. In 1968-69 the quantity exported overseas was 4,818,106 bushels, the principal buyers being the Republic of China (Taiwan) and Japan. Most 'six-row' barley marketed is shipped overseas, while sales of 'two-row' barley are mainly to local maltsters.

The marketing of barley, both for export and for local consumption, is controlled by the Western Australian Barley Marketing Board, Co-operative Bulk Handling Limited acting as the Board's licensed receiver.

### Other Grains and Pulse

Rye and field peas are the only other grain or pulse crops which are cultivated to any appreciable extent. Maize and sorghum are grown but only in small quantities.

#### RYE AND FIELD PEAS FOR GRAIN—AREA AND PRODUCTION

Season	Rye				Field peas			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1964-65 .....	9,754	64,533	6.6	68,740	2,781	*23,766	8.5	56,246
1965-66 .....	10,052	74,877	7.4	80,838	4,356	30,669	7.0	128,810
1966-67 .....	10,682	99,471	9.3	110,861	4,551	39,435	8.7	107,656
1967-68 .....	10,944	91,188	8.3	95,622	4,699	44,662	9.5	138,899
1968-69 .....	8,986	58,804	6.5	69,741	7,691	60,412	7.8	117,803

\* Revised.

### Hay

The principal cereal hay crop is oats and 154,691 tons of oaten hay were cut in 1968-69 from 106,133 acres. Wheat is the only other cereal crop which is used extensively for this purpose and in 1968-69 the production was 42,522 tons from 34,290 acres. Large quantities of meadow hay are cut from clover and grass pastures, production in 1968-69 being 285,938 tons from 189,859 acres. Barley, vetches, lucerne, field peas, rye, and sorghum are also used for hay making but they are of minor importance only.

#### HAY—AREA AND PRODUCTION

Season	Meadow		Oaten		Wheaten		Other (a)		Total	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	acres	tons	acres	tons	acres	tons	acres	tons	acres	tons
1964-65 .....	136,249	202,688	120,993	137,764	38,869	39,700	8,499	10,153	304,610	390,305
1965-66 .....	134,563	197,652	111,615	158,765	37,681	47,354	6,938	10,646	290,797	414,417
1966-67 .....	139,842	208,893	111,045	151,287	35,247	43,791	8,948	13,392	295,082	417,363
1967-68 .....	155,355	209,646	118,478	153,870	34,717	43,886	9,373	13,751	317,923	421,153
1968-69 .....	189,859	285,938	106,133	154,691	34,290	42,522	10,894	16,591	341,176	499,742

(a) Mainly barley, vetch, lucerne, field pea, rye and sorghum hay.

### Pastures

The first established pastures in the State were cultivated to provide grazing for dairy cattle but, with the rapid increase in the number of sheep carried on wheat farms, by far the greater area is now located in the wheat-growing districts.

Subterranean clover was one of the first pasture species sown in these districts and it is still the most important, although other clovers and a variety of grasses including Wimmera rye grass and perennial rye grasses are also grown extensively. The present practice in the higher-rainfall areas is to sow a mixture of two or more species, selected for their suitability to the type of soil and rainfall, to give a legume grass pasture.

From 1.9 million acres in 1945-46, the area under established pasture has increased remarkably to 15.4 million acres in 1968-69. The top-dressing of pastures with super-phosphate has developed to such an extent that this treatment is now general practice.

Western Australia is in a particularly good position to produce seed of annual legumes and grasses on a large scale and in 1968-69 produced more than half of the total Australian crop.

Each year approximately 1 million acres of new land are cleared, much of it along the south coast where the growing season is six or seven months. It has been found that if heavier seed and fertiliser applications are used, good subterranean clover seed crops can be grown in the first year on this new land. Similarly, in more inland districts good yields of barrel medic can be obtained on suitable soil types. The paddocks generally being used are large, open and only gently undulating, and are thus suitable for the operation of modern harvesting machines. Very little, if any, rain falls in the summer months and this ensures ideal harvesting conditions.

The development of suction harvesting machines in recent years has enabled this potential to be exploited. Suction harvesters are now used to harvest most of the more important small-seeded legume crops (subterranean clover, barrel medic and rose clover).

Seed certification schemes are operated by the Department of Agriculture for the main species of pasture seed. These schemes ensure that buyers are in a position to obtain good quality seed of the strain they require free from weed seeds. Certification schemes have assisted greatly in marketing and in allowing the development of a sound export trade.

Production of all kinds of pasture seed increased from 20.4 million lb in 1967-68 to a record 29.1 million lb in 1968-69. There is an important export trade in subterranean clover seed and in 1968-69 the total exported was 4,223,322 lb, almost all of which went to other Australian States.

#### PASTURE SEED HARVESTED

Season	Principal pasture seed								Total pasture seed (all kinds)	
	Subterranean clover		Rose clover		Barrel medic		Wimmera rye grass		Area harvested	Pro-duction
	Area harvested	Pro-duction	Area harvested	Pro-duction	Area harvested	Pro-duction	Area harvested	Pro-duction		
	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)
1964-65	59,275	132,292	1,849	2,822	5,355	5,407	1,468	2,142	75,984	155,894
1965-66	75,973	191,456	3,186	4,655	9,582	14,777	1,508	2,188	95,534	226,271
1966-67	87,001	196,611	6,343	9,745	16,489	24,245	1,798	2,927	118,089	246,954
1967-68	71,667	159,541	6,464	9,594	9,937	12,255	1,674	1,730	98,172	204,325
1968-69	98,077	212,309	5,137	7,852	10,391	14,832	1,803	2,050	131,335	291,064

(a) Cental = 100 lb.

#### Green Feed

Large areas of oats are grown for use as green feed for stock. Among other crops which are cultivated for this purpose, but to a far lesser extent, are barley, field peas, wheat, rye, and lucerne. The total area of crops used for green feed was 297,240 in 1968-69, a considerable decline occurring over the previous ten years.

#### GREEN FEED—AREA GRAZED OR CUT (Acres)

Season	Oats	Barley	Peas and beans	Wheat	Rye	Lucerne	All other kinds (a)	Total
1964-65	378,466	24,796	7,306	9,931	9,991	7,825	7,724	446,039
1965-66	341,668	26,108	9,047	8,440	7,690	10,971	10,021	413,945
1966-67	332,090	22,073	8,748	10,590	6,961	6,396	11,993	398,851
1967-68	344,661	24,217	10,947	9,727	6,969	5,394	12,638	414,553
1968-69	233,530	21,310	10,685	8,113	5,410	4,623	13,569	297,240

(a) Mainly sudax, vetches, millet, sudan grass and sorghum.

#### Linseed

During the war, attempts were made to cultivate those varieties of flax which yield linseed as the principal product, but they were largely unsuccessful and were abandoned. Efforts were renewed in 1947-48 but once again were short-lived, being discontinued after five years. Production recommenced in 1957-58 when 1,350 cwt were harvested

from 549 acres. Since then area and production have fluctuated widely, the lowest figures being recorded in 1965-66 when an area of 97 acres was cropped for a harvest of 303 cwt. As a result of a renewed interest in linseed as a cash crop for the Esperance area, the acreage sown then increased substantially in each of the three succeeding years to a record 18,645 acres in 1968-69.

#### LINSEED—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	cwt	cwt	\$
1964-65 ....	2,135	11,338	5.3	77,922
1965-66 ....	97	303	3.1	2,060
1966-67 ....	1,751	12,680	7.2	44,380
1967-68 ....	6,886	41,666	6.1	199,452
1968-69 ....	18,645	106,419	5.7	514,639

#### Cotton

The first commercial crop of cotton was grown at Kununurra in 1962-63 on land irrigated from the Ord River diversion dam at Bandicoot Bar. In 1968-69 a total area of 8,327 acres produced 192,500 cwt of seed cotton, the average yield per acre being 2,589 lb. A cotton ginnery to process the seed cotton was installed at Kununurra in 1963 and a second ginnery commenced operations in May 1967.

Under the *Raw Cotton Bounty Act* 1963-1969, the Commonwealth Government pays a bounty on raw cotton of grade higher than 'strict good ordinary' and with a staple length of not less than seven-eighths of an inch which is produced in Australia. Bounty is paid at the rate of 13.4375 cents per lb on cotton of 'middling white' grade with a staple length of one inch. Provision is made for premiums and discounts on grades and staples above and below these standards. The amount available for payment of bounty for the year commencing 1 March 1970 is \$3 million and in the succeeding year \$2 million. Prior to 1 March 1970 the amount available in any year from 1 January 1964 was \$4 million.

#### COTTON—AREA AND PRODUCTION

Season	Area	Production of seed cotton		
		Total	Average yield per acre	Gross value
	acres	cwt	lb	\$
1964-65 ....	5,475	96,341	1,971	1,065,364
1965-66 ....	8,307	182,421	2,464	1,871,722
1966-67 ....	11,892	262,500	2,472	2,393,000
1967-68 ....	11,782	231,732	2,203	1,892,000
1968-69 ....	8,327	192,500	2,589	1,680,700

#### Potatoes

The cultivation of potatoes, the State's principal vegetable crop, is largely confined to the higher-rainfall areas of the South-West. Winter crops are planted during June and early July on the frost-free hillsides and drained flats of the coastal areas between Waroona and Donnybrook and on the market garden land in the Perth Statistical Division. Mid-season plantings are made from the middle of July to November on summer-moist areas or on sprinkler-irrigated land in the Shires of Manjimup, Busselton, Albany and Waroona and in market gardens in the Perth Statistical Division. Late crops are planted between mid-November and the end of February in all districts growing early and mid-season crops, other than the Perth Statistical Division.

The average yield of potatoes per acre in Western Australia is consistently very much greater than that for Australia as a whole, and in 1968-69 comparative yields were 11.3 tons and 7.0 tons per acre. This is due mainly to the favourable climatic conditions

in Western Australia and the increasing use of sprinkler irrigation. Delaware, the variety which is grown almost exclusively in the State gives high yields under a wide range of growing conditions. There is a substantial export surplus, the bulk of which usually goes to the other Australian States with smaller consignments being sent overseas, principally to Singapore.

Potato production in Western Australia is controlled, under the provisions of the *Marketing of Potatoes Act, 1946-1966*, by the Western Australian Potato Marketing Board, which is the sole marketing authority for potatoes produced in the State. The object of this provision is to ensure adequate supplies for local consumption and effective marketing of crops.

POTATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	\$
1964-65	5,797	60,739	10.5	5,371,932
1965-66	6,229	62,865	10.1	5,026,658
1966-67	6,100	64,169	10.5	4,958,829
1967-68	6,149	70,469	11.5	5,537,310
1968-69	6,588	74,435	11.3	5,613,344

Onions

The production of onions is largely confined to the metropolitan and adjacent areas, Osborne Park and Spearwood being the main centres. In these districts onions are usually grown on light sandy soils and yields of up to 20 tons per acre are obtained. An increase in area occurred during each season from 1958-59 to 1962-63 when 509 acres were planted. The area planted then declined steadily over the next three years, with a slight recovery occurring in 1966-67. In 1968-69 359 acres were planted for a production of 5,494 tons or 15.3 tons per acre.

Onions are imported annually into Western Australia during the winter but a surplus is produced locally during summer months which is exported, in the main, to overseas markets, the most important being Singapore.

ONIONS—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	\$
1964-65	428	5,981	14.0	376,490
1965-66	331	3,948	11.9	392,870
1966-67	413	5,417	13.1	419,440
1967-68	340	4,633	13.6	540,941
1968-69	359	5,494	15.3	541,478

Tomatoes

The main centres of production of tomatoes are at Carnarvon and Geraldton and in the districts around Perth. At Carnarvon and Geraldton, because of the warm winter climate, growers are able to produce early crops and take advantage of the high prices ruling on the Melbourne market during the winter and spring. They also supply substantial quantities to the Perth market and there is a consistent export trade with Christmas Island (Indian Ocean) and Singapore.

Supplies to the Perth market from December to June are grown in and near the metropolitan area, principally in the Wanneroo and Osborne Park districts. Tomatoes are also grown in a number of districts in the South-West and a small area is planted annually at Kalgoorlie.



The total area under tomatoes reached a peak of 1,555 acres in 1944-45 but the average yield per acre in that year was low and total production was only 755,898 half-bushel cases. Since then, although the area has declined, yields per acre have improved and production in 1968-69 was 716,812 half-bushel cases from 612 acres, an average yield of 1,171 half-bushel cases per acre.

## TOMATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	'000 half-bushel cases	half-bushel cases	\$
1964-65	722	741	1,027	1,177,004
1965-66	649	697	1,075	1,719,009
1966-67	691	753	1,090	1,949,857
1967-68	680	763	1,123	1,545,745
1968-69	612	716	1,171	1,885,198

## Other Vegetables

In addition to the cultivation of potatoes, onions and tomatoes, previously mentioned, many other vegetables are produced, the bulk of them in or near the metropolitan area where growers benefit not only from proximity to the principal market but also from an abundant supply of water at relatively shallow depths. Small quantities are also produced in many country districts. An important early crop of beans is grown at Carnarvon and transported by road to Perth. Approximately half of this crop is then railed or airfreighted to Adelaide with some going to Melbourne. Exports of cauliflower to Singapore and Malaysia have become significant in recent years.

Details of the area and production of the principal vegetables other than potatoes, onions and tomatoes for the years 1964-65 to 1968-69 are given in the next three tables.

## TURNIPS, CARROTS, PARSNIPS, BEETROOT—AREA AND PRODUCTION

Season	Turnips (swede and white)			Carrots			Parsnips			Beetroot		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	'000 lb	\$	acres	tons	\$	acres	'000 lb	\$	acres	'000 lb	\$
1964-65	129	1,760	51,756	380	4,503	388,530	120	2,042	122,128	112	2,373	53,682
1965-66	134	1,817	49,842	403	4,976	248,517	124	2,306	113,563	95	1,881	78,519
1966-67	122	1,942	69,671	429	5,657	565,145	107	2,235	227,909	97	1,659	90,964
1967-68	127	1,815	106,228	415	5,550	362,986	105	2,090	140,144	82	1,443	57,716
1968-69	127	1,337	54,539	396	8,809	692,387	86	1,452	102,674	58	935	49,914

## PUMPKINS, BEANS, GREEN PEAS—AREA AND PRODUCTION

Season	Pumpkins			Beans						Green peas		
	Area	Production		Area	Runner		Area	French		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	'000 bags	\$	acres	'000 lb	\$	acres	'000 lb	\$	acres	'000 lb	\$
1964-65	937	89	344,276	981	9,682	878,596	57	381	60,400	2,120	9,179	311,484
1965-66	791	76	201,210	952	8,726	1,043,623	32	196	29,484	2,942	13,473	267,096
1966-67	867	77	277,424	1,028	8,948	1,161,713	42	186	22,324	3,236	11,152	418,817
1967-68	934	92	328,229	943	8,128	975,314	121	584	40,886	2,854	11,220	261,935
1968-69	856	90	357,416	817	6,923	969,219	151	666	64,129	2,274	11,800	232,960

## CABBAGES, CAULIFLOWERS, LETTUCE—AREA AND PRODUCTION

Season	Cabbages			Cauliflowers			Lettuce		
	Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	'000 crates	\$	acres	'000	\$	acres	'000 crates	\$
1964-65	344	224	238,730	607	3,200	579,688	404	314	479,078
1965-66	368	234	260,172	663	3,418	686,698	433	362	598,423
1966-67	356	218	254,048	679	3,605	763,229	417	354	666,402
1967-68	392	258	451,449	640	3,356	848,906	431	351	613,289
1968-69	347	246	243,700	680	3,392	967,905	399	348	696,460

## Orchards

Fruit production is largely confined to the temperate regions between Gingin to the north of Perth and Albany on the south coast. The cool, wet winters and warm, dry summers of this area permit the successful cultivation of a wide variety of fruits. In the southern and south-western sections, apples, pears and stone fruits are grown extensively while in the districts around Perth the principal crops are apples, stone fruits, citrus fruits and grapes. Outside this main fruit-growing area, banana plantations have been established at Carnarvon in the North-West.

The following table shows details of production of the principal groups of orchard fruit during the years 1964-65 to 1968-69.

## FRUIT (a)—AREA AND GROSS VALUE OF PRODUCTION

Season	Pome (b)		Citrus (c)		Stone (d)		Other (e)		Total fruit (a)	
	Area (f)	Gross value of production	Area (f)	Gross value of production	Area (f)	Gross value of production	Area (f)	Gross value of production	Area (f)	Gross value of production
		\$		\$		\$		\$		\$
1964-65	16,903	6,929,850	6,005	1,360,232	2,443	999,070	1,074	1,033,350	26,425	10,322,502
1965-66	17,200	5,418,650	5,964	1,262,268	2,514	957,298	1,037	1,195,402	26,715	8,833,618
1966-67	16,746	7,288,924	6,130	1,618,232	2,489	1,048,423	1,093	1,260,718	26,457	11,216,297
1967-68	16,112	7,251,995	5,932	1,843,954	2,458	1,181,588	1,097	824,100	25,599	11,101,637
1968-69	16,156	9,013,608	5,785	1,733,777	2,340	1,212,404	1,085	1,543,256	25,366	13,503,045

(a) Excludes grapes. (b) Apples, pears and quinces. (c) Principally oranges, mandarins, lemons and grapefruit. (d) Apricots, peaches, nectarines, plums and cherries. (e) Bananas, loquats, figs, passion fruit, almonds and other minor fruits. (f) Includes area under young non-bearing trees.

## Apples

Apples, which are the principal fruit crop, account for more than half the total orchard area. Manjimup, Donnybrook, Bridgetown and Mount Barker (based on number of bearing and non-bearing trees) are the most important centres but other districts in the South-West and in the Darling Range near Perth produce large quantities. In 1968-69 the total area of bearing trees was 11,480 acres which produced 2,870,187 bushels, the principal varieties being Granny Smith, Yates, Jonathan, Cleopatra and Delicious.

## APPLES—AREA AND PRODUCTION

Season	Area		Production		
	Trees of bearing age	Young trees not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1964-65	11,511	4,231	2,355,160	204.6	6,476,414
1965-66	11,760	4,281	1,603,040	136.3	4,808,375
1966-67	11,596	4,058	2,386,741	205.8	6,694,783
1967-68	11,269	3,809	2,060,158	182.8	6,636,970
1968-69	11,480	3,685	2,870,187	250.0	8,289,047

(a) Calculated on the area of bearing trees only.

There is a valuable export trade and overseas shipments generally exceed well over 1 million bushels annually. The United Kingdom is the most important market, followed by the Federal Republic of Germany, with Singapore, Sweden and Ireland also buying significant quantities.

### Pears

Pears are usually grown in conjunction with apples but the area planted and the quantity produced are much less, the total area of bearing trees in 1968-69 being 760 acres and the production 191,351 bushels. The bulk of the crop is consumed locally but significant quantities are exported, principally to Singapore, Malaysia, Christmas Island (Indian Ocean) and the United Kingdom.

#### PEARS—AREA AND PRODUCTION

Season	Area		Production		
	Trees of bearing age	Young trees not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1964-65 ....	799	349	190,915	238·9	451,488
1965-66 ....	800	344	189,979	237·5	608,701
1966-67 ....	812	268	153,872	189·5	592,807
1967-68 ....	743	275	181,772	244·6	611,486
1968-69 ....	760	218	191,351	251·8	721,475

(a) Calculated on the area of bearing trees only.

### Citrus Fruit

The following tables give details of production of each type of citrus fruit for the years 1964-65 to 1968-69.

#### ORANGES AND MANDARINS—AREA AND PRODUCTION

Season	Oranges				Mandarins			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1964-65 ....	3,710	1,024	480,422	1,096,744	251	248	26,611	112,060
1965-66 ....	3,670	1,017	322,866	974,768	262	288	23,935	122,865
1966-67 ....	3,691	1,120	466,349	1,226,919	272	341	32,978	147,741
1967-68 ....	3,603	1,032	482,199	1,359,100	316	312	41,780	204,443
1968-69 ....	3,682	824	550,962	1,199,648	363	279	49,068	206,086

#### LEMONS AND OTHER CITRUS FRUIT—AREA AND PRODUCTION

Season	Lemons				Other citrus (a)			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1964-65 ....	505	126	97,669	121,422	113	28	18,614	30,006
1965-66 ....	505	97	117,604	137,906	108	17	16,060	26,729
1966-67 ....	502	82	141,856	200,953	104	18	20,881	42,619
1967-68 ....	488	69	142,859	235,778	94	18	18,513	44,633
1968-69 ....	478	50	153,855	277,180	92	17	20,068	50,863

(a) Principally grapefruit.

While the Shire of Chittering is the chief citrus fruit producer, there are other important areas near Perth in the Shires of Kalamunda, Armadale-Kelmscott, Swan, Gosnells and Capel (in order according to number of trees bearing and non-bearing). Although

oranges are by far the most important crop and account for almost four-fifths of the total area, substantial quantities of lemons, grapefruit and mandarins are also produced.

Production is largely for local consumption but there is some export trade, mainly with Christmas Island (Indian Ocean), Mauritius and the Federation of South Arabia.

### Stone Fruits

Plums, peaches, apricots, nectarines and cherries are grown in the hills districts in the Darling Range near Perth, in the Swan Valley and in many districts in the South-West. The total area under stone fruit in 1968-69 was 2,340 acres, comprising 1,067 acres of plums, 855 of peaches, 276 of apricots, 95 of nectarines and 47 of cherries. The bulk of the stone fruit crop is consumed locally but shipments of plums are sent overseas, mainly to Singapore, Hong Kong and Malaysia.

The following tables give details of production of the principal stone fruits for the five years 1964-65 to 1968-69.

PLUMS AND PEACHES—AREA AND PRODUCTION

Season	Plums and prunes				Peaches			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1964-65 .....	821	230	101,828	526,556	727	197	87,371	272,230
1965-66 .....	840	250	103,744	384,876	744	212	120,605	379,219
1966-67 .....	869	253	122,505	490,847	742	182	107,669	324,286
1967-68 .....	901	221	142,943	562,585	746	148	135,834	370,863
1968-69 .....	896	171	100,243	531,383	728	127	112,067	406,579

APRICOTS AND NECTARINES—AREA AND PRODUCTION

Season	Apricots				Nectarines			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1964-65 .....	256	53	23,996	147,168	104	17	10,525	44,672
1965-66 .....	244	61	28,606	117,758	96	22	14,255	54,360
1966-67 .....	226	61	33,620	148,181	87	23	11,908	60,016
1967-68 .....	233	58	36,636	148,544	86	20	14,807	63,966
1968-69 .....	229	47	35,733	152,115	80	15	13,402	79,161

### Bananas

Production of bananas is confined almost entirely to a narrow strip of land along the Gascoyne River at Carnarvon. The plantations are dependent on water pumped from bores which tap a subterranean flow in the sands of the usually dry river bed. As a surface flow in the river channel results only from heavy rains, which do not occur every year, a problem is presented in the falling-off of water supplies and in the increase in the salt content of the underground water during long dry periods. These conditions and also periodic damage from cyclones cause fluctuations in the area of the plantations and in production.

The crop is transported by road to Perth and sold locally in competition with bananas imported from other Australian States.

## BANANAS—AREA AND PRODUCTION

Season	Area		Production		
	Plants of bearing age	Young plants not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1964-65 .....	369	100	145,095	393.2	949,984
1965-66 .....	345	101	198,693	575.9	1,117,695
1966-67 .....	364	142	169,085	464.5	1,162,842
1967-68 .....	380	138	126,697	333.4	709,503
1968-69 .....	445	95	252,686	567.6	1,415,041

(a) Calculated on the area of bearing plants only.

## Vineyards

Almost three-quarters of the State's 7,270 acres of grape vines are in the Shire of Swan, other important centres being Chittering, Wanneroo, Toodyay, Gosnells and Northam.

In the dried vine fruit industry, currants are the main item of production and a high proportion of the crop is exported overseas, Canada and Mozambique being the principal buyers in 1968-69. Small quantities are exported to other Australian States. Production of sultanas and table raisins is of minor importance and exports are negligible.

Table grapes are grown for the local market and for export overseas, mainly to Singapore and Malaysia. The production of beverage wines has exceeded 600,000 gallons for the past eight years, reaching a record production of over 800,000 gallons in 1968-69. Most of the wine produced is for local consumption although small amounts are exported to the other Australian States and overseas.

## GRAPES—AREA AND PRODUCTION

Season	Area		Grapes used for wine making and table use		Dried vine fruits		Wine production	
	Vines of bearing age	Young vines not bearing	Quantity	Gross value	Quantity	Gross value	Beverage (a)	Distillation
	acres	acres	'000 cwt	\$'000	'000 cwt	\$'000	'000 gallons	'000 gallons
1964-65 .....	7,577	733	152	724	49	670	613	201
1965-66 .....	7,531	684	150	688	28	485	627	215
1966-67 .....	7,304	641	148	593	28	432	705	219
1967-68 .....	7,064	601	140	630	34	462	616	213
1968-69 .....	6,733	537	157	786	37	550	837	219

(a) Includes spirit produced from distillation wine and used in fortification.

## Nurseries

Commercial nurseries are concentrated in the Perth Statistical Division, Kalamunda with 30 per cent of the total area of commercial nurseries being the principal centre. Most nursery production is in the form of potted shrubs, ornamental trees and cut flowers for domestic use but large numbers of fruit trees are produced for planting in orchards.

## NURSERIES (a): AREA AND VALUE OF SALES (b)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Area .....	acres				
Sales (year ended 31 March) .....	\$				
	280	284	240	246	244
	805,356	924,909	893,627	910,478	1,137,746

(a) Excludes non-commercial nurseries.

(b) Value at the holding, after deducting costs incurred in marketing.

### Holdings Growing Certain Crops

The following table shows the number of holdings which grew certain crops in each of the years 1964-65 to 1968-69.

NUMBER OF HOLDINGS GROWING CERTAIN CROPS

Crop	1964-65	1965-66	1966-67	1967-68	1968-69
20 acres and over—					
Wheat for grain .....	8,779	9,044	8,897	8,746	8,964
Oats for grain .....	7,648	7,930	7,614	7,532	7,091
Barley for grain .....	2,489	3,017	2,782	2,905	3,631
5 acres and over—					
Linseed .....	27	4	15	35	103
1 acre and over—					
Vegetables (all kinds) (a) .....	1,769	1,813	1,970	1,818	1,720
Potatoes .....	626	627	609	577	573
Onions .....	204	164	170	153	160
Grapes .....	704	706	702	665	613
Orchard fruit (all kinds) (b) .....	2,698	2,718	2,631	2,544	2,441
Citrus fruit .....	930	923	932	913	871
Pome fruit .....	1,382	1,378	1,321	1,273	1,225
Stone fruit .....	581	576	570	560	524
Bananas .....	98	105	122	112	114
Passion fruit .....	38	42	40	38	37

(a) Includes growers of potatoes and onions of bananas and passion fruit.

(b) Includes growers of citrus, pome and stone fruit but excludes growers

### Artificial Fertilisers

Soils in Western Australia are acutely deficient in phosphate, and regular applications of phosphatic fertiliser are required for crop and pasture growth. Newly cleared land may require applications of up to 200 lb of superphosphate per acre for satisfactory crop yields, but annual applications can be reduced as the phosphate content of the soil is improved through the residual effect of the added fertiliser. On established land, applications of 70 lb to 100 lb of superphosphate per acre are commonly used in wheat growing.

Nitrogen deficiencies also exist in some areas. Legume pastures have assisted greatly in building up nitrogen in the soil and in some situations appreciable increases in yield may be achieved by applying forms of concentrated nitrogenous fertiliser.

The following table shows details of superphosphate and other artificial fertilisers used on crops and pastures during the years 1964-65 to 1968-69.

ARTIFICIAL FERTILISER USED ON RURAL HOLDINGS

Season	Crops					Pastures				
	Area fertilised	Quantity used				Area fertilised	Quantity used			
		Super-phosphate (a)	Other artificial fertilisers	Total	Average per acre		Super-phosphate (a)	Other artificial fertilisers	Total	Average per acre
1964-65	acres	tons	tons	tons	cwt	acres	tons	tons	tons	cwt
1965-66	7,271,208	357,513	27,830	385,343	1.06	8,887,681	453,205	5,906	459,111	1.03
1966-67	8,434,054	421,071	30,851	451,922	1.07	10,051,456	512,758	7,750	520,508	1.04
1967-68	8,531,382	436,834	37,269	474,103	1.11	11,601,382	609,858	12,594	622,452	1.07
1968-69	8,867,662	472,304	53,650	525,954	1.19	12,596,847	676,535	17,479	694,014	1.10
1968-69	9,459,832	513,782	78,538	592,320	1.25	13,036,807	708,774	22,199	730,973	1.12

(a) Includes superphosphate with trace elements.

### PASTORAL PRODUCTION

Throughout this section, where mention is made of the 'pastoral areas' the portion of the State referred to comprises the Kimberley, Pilbara, North-West and Central Statistical Divisions together with the Shires of Boulder, Coolgardie, Laverton, Leonora and Menzies, which form part of the Eastern Goldfields Division. The balance of the State,

referred to as the 'agricultural areas', comprises the Perth, South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Divisions together with the Shires of Dundas, Esperance, Ravensthorpe and Yilgarn in the Eastern Goldfields Division.

In the early days of settlement, pastoral activities in Western Australia were confined largely to what are now the agricultural areas and were usually associated with the cultivation of crops. However, beginning with Captain George Grey's visit in 1838 to the area known as the West Kimberley, explorers increasingly drew attention to the pastoral possibilities of large sections of the present Kimberley, Pilbara, North-West and Central Statistical Divisions.

In 1857 and 1858, F. T. Gregory noted the existence of good pastoral country in the Murchison and the Gascoyne districts and in the course of a journey further to the north in 1861 he discovered the Ashburton, Fortescue, De Grey and Oakover Rivers. His reports of good grazing lands in the area led to the establishment of sheep stations by pastoralists from the south, the first of such ventures, in 1863, being in the De Grey district of what is now the Pilbara Statistical Division. Graziers were also turning their attention to the south-east and in the 1870s pastoral lands were being taken up in the coastal areas to the south of the Nullarbor Plain. Another development in the extension of pastoral activity began with Alexander Forrest's journey through the Kimberley in 1879 and his favourable reports on the suitability of the country for grazing. Leases along the Fitzroy and the Ord Rivers were stocked not only with livestock shipped from the south and from the other Australian Colonies but also with cattle brought overland to the area, principally from Queensland and New South Wales, by remarkable feats of droving.

Pastoral production, comprising mainly the production of wool and meat, in 1968-69 contributed over 32 per cent of the total net value of Western Australian primary production.

### Sheep

The following table shows the total numbers of sheep, and their distribution between the agricultural and pastoral areas, in each year from 1946 to 1969.

SHEEP NUMBERS AND DISTRIBUTION

At 31 March—					In agricultural areas		In pastoral areas		State total
					Number	Proportion of State total (per cent)	Number	Proportion of State total (per cent)	
1946	....	....	....	....	7,029,761	72.0	2,736,222	28.0	9,765,983
1947	....	....	....	....	6,990,756	71.4	2,796,246	28.6	9,787,002
1948	....	....	....	....	7,417,053	71.0	3,026,745	29.0	10,443,798
1949	....	....	....	....	7,509,710	69.1	3,362,830	30.9	10,872,540
1950	....	....	....	....	7,518,456	68.8	3,404,711	31.2	10,923,167
1951	....	....	....	....	8,269,814	72.8	3,092,094	27.2	11,361,908
1952	....	....	....	....	9,174,640	75.3	3,013,112	24.7	12,187,752
1953	....	....	....	....	9,304,681	74.6	3,169,991	25.4	12,474,672
1954	....	....	....	....	9,921,867	75.8	3,165,241	24.2	13,087,108
1955	....	....	....	....	10,273,780	76.6	3,137,502	23.4	13,411,282
1956	....	....	....	....	10,976,121	77.7	3,152,047	22.3	14,128,168
1957	....	....	....	....	11,845,409	79.6	3,041,140	20.4	14,886,549
1958	....	....	....	....	12,704,210	80.8	3,019,753	19.2	15,723,963
1959	....	....	....	....	13,070,754	80.6	3,144,490	19.4	16,215,244
1960	....	....	....	....	13,395,527	81.6	3,016,062	18.4	16,411,589
1961	....	....	....	....	13,940,614	81.3	3,210,770	18.7	17,151,384
1962	....	....	....	....	14,951,185	81.6	3,362,694	18.4	18,313,879
1963	....	....	....	....	15,403,902	82.3	3,323,222	17.7	18,727,124
1964	....	....	....	....	16,608,300	82.4	3,556,568	17.6	20,164,868
1965	....	....	....	....	18,670,759	83.4	3,721,075	16.6	22,391,834
1966	....	....	....	....	20,695,040	84.7	3,731,768	15.3	24,426,808
1967	....	....	....	....	23,525,280	86.0	3,845,106	14.0	27,370,386
1968	....	....	....	....	26,406,575	87.6	3,754,302	12.4	30,160,877
1969	....	....	....	....	28,888,450	87.8	4,012,708	12.2	32,901,158

The present distribution of sheep in the State is the result of two opposite trends operating over many years. In the pastoral, or station areas where the industry is based on long-term pastoral leases, severe droughts led to a decline in the number of sheep, although some recovery has taken place in recent years. In the agricultural, or farming areas, however, the sheep population has steadily risen. Factors contributing to this rise, particularly since the war, have been the increasing use of subterranean clover in the wheat belt, the provision in many areas of more assured water supplies, a taxation policy which, by the provision of special concessions to primary producers, has encouraged farmers to clear and develop new land, the War Service Land Settlement Scheme which developed new areas and the stimulating effect of buoyant wool prices in the post-war period.

The overall result has been a marked upward trend in sheep numbers since the war, and at 31 March 1969, the State total was 32.9 million, compared with 9.77 million at the same date in 1946. Numbers in the agricultural areas increased from 7 million, or 72 per cent of the State total, to 28.9 million or nearly 88 per cent. They also increased in the pastoral areas from 2.74 million to 4.01 million, but as a percentage of the State total this represents a decline from 28 per cent to little more than 12 per cent.

**SHEEP FLOCKS AT 31 MARCH 1966**  
**CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF FLOCK**

Size of holding (acres)	Size of sheep flock (numbers)									Total, all rural holdings	
	1-299	300-499	500-699	700-999	1,000- 1,399	1,400- 1,999	2,000- 2,999	3,000- 4,999	5,000 and over		Total flocks
1- 99	398	7	1	1						407	4,553
100- 199	271	39	10	3		1				324	1,251
200- 299	225	52	30	16	5	1				329	1,058
300- 399	171	78	41	35	15	4				344	837
400- 499	109	52	49	33	22	10	1			276	632
500- 599	88	46	43	50	26	20	2			275	523
600- 799	125	81	75	108	89	52	11	1		542	907
800- 999	80	86	85	100	101	73	59			584	786
1,000- 1,399	112	104	164	208	230	228	160	23		1,229	1,501
1,400- 1,999	73	83	183	374	338	368	321	88	4	1,832	2,082
2,000- 2,999	86	95	170	393	363	583	516	250	26	2,682	3,148
3,000- 4,999	85	81	116	245	472	617	593	339	118	2,666	3,306
5,000- 9,999	21	19	26	74	162	257	339	274	151	1,323	1,435
10,000-19,999	1	1	2	9	10	29	49	72	77	250	264
20,000-49,999	1		1	1	1	3	6	13	21	47	57
50,000 and over	6	4	4	4	10	9	12	52	300	401	513
Total	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511	22,853

**SHEEP FLOCKS AT 31 MARCH 1966**  
**CLASSIFIED ACCORDING TO SIZE OF FLOCK AND AREA OF ESTABLISHED PASTURE**

Area of established pasture (acres)	Size of sheep flock (numbers)										Total, all rural holdings
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over	Total flocks	
Nil	357	219	286	435	411	335	185	107	309	2,644	7,529
1-9	77	2	2		1					81	441
10-19	61	2	4	3	7	5		1		83	340
20-29	55	5	4	7	11	4	1	1		88	289
30-49	101	8	7	20	13	6	6	1		162	474
50-69	97	11	11	17	12	11	1	3	1	164	439
70-99	131	25	15	28	16	4	3			222	568
100-149	224	56	62	68	44	29	15	4	1	503	1,136
150-199	158	84	48	49	39	29	18	1	2	428	945
200-299	241	129	135	176	128	53	31	6	1	900	1,494
300-399	138	109	113	171	157	66	25	9	1	789	1,115
400-499	73	57	101	157	173	119	33	8	1	722	920
500-699	72	63	106	241	345	308	154	24	3	1,316	1,534
700-999	41	38	68	179	326	492	368	41	3	1,556	1,665
1,000-1,999	24	21	36	98	330	714	965	485	46	2,719	2,814
2,000 and over	2		2	5	31	80	264	421	329	1,134	1,150
Total	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511	22,853



In the preceding tables sheep flocks at 31 March 1966, in size groups, are classified according to the size of the holding and to the area of established pasture. Of the 22,853 holdings of all types, sheep were carried on 13,511. Holdings of between 1,000 and 5,000 acres accounted for 62 per cent of the flocks and holdings which carried between 500 and 2,000 sheep for 51 per cent of the flocks. Of the holdings carrying sheep 10,867 or 80 per cent had some established pasture and 9,136, or 68 per cent had 200 acres and over.

An analysis of collected data relating to breeds of sheep as at 31 March 1968 showed that Merinos accounted for 91 per cent of the total. Corriedales, Polwarths and British breeds, the most important of which are Romney Marsh, Dorset Horn, South Down, Border Leicester and Suffolk, comprised 4 per cent and the remaining 5 per cent was made up of Crossbreds, including Merino Comebacks. With low wool prices operating during the ten years prior to the war, some farmers turned to the production of fat lamb carcasses for export, mainly to the United Kingdom. The industry which developed as a result was based on the use of Corriedale and British breeds of rams, which in 1968 comprised about 17 per cent of the rams in the State. As a result of the high wool prices during the Korean war the 'fat lamb' industry declined sharply in 1950-51 and 1951-52 but recovered in 1952-53. The recovery in the industry was maintained for some years and exports of lamb fluctuated between 4.08 million lb in 1953-54 and 11.5 million lb in 1960-61. Increased lamb production in the United Kingdom and variable market prices then led to a sharp decline in the export of lamb, the total falling to 2.06 million lb in 1967-68. A recovery occurred in 1968-69 when 9.17 million lb were exported.

The following table shows the numbers of each breed of sheep in the State at 31 March 1968.

## BREEDS OF SHEEP (a)

Breed	At 31 March 1968			
	Rams (one year and over)	Other sheep	Total	Number of holdings with rams (b)
Merino ....	343,009	26,943,090	27,286,099	9,941
Other recognised breeds—				
Border Leicester ....	10,880	139,346	150,226	803
Cheviot ....	361	3,522	3,883	46
Corriedale ....	22,480	781,767	804,247	1,216
Dorset Horn ....	10,812	58,667	69,479	1,030
English Leicester ....	452	5,769	6,221	31
Poll Dorset ....	1,089	5,250	6,339	75
Polwarth ....	4,259	126,829	131,088	216
Romney Marsh ....	5,177	60,285	65,462	449
Ryeland ....	304	1,140	1,444	37
Shropshire ....	410	1,402	1,812	33
South Down ....	11,773	33,724	45,497	947
South Suffolk ....	737	1,601	2,338	59
Suffolk ....	2,800	12,847	15,647	374
Other ....	33	29	62	(e)
Total, Other recognised breeds ....	71,567	1,232,178	1,303,745	(e)
Merino Comeback (c) ....	1,294	337,642	338,936	84
Crossbreds (d) and other mixed breeds ....	1,702	1,230,395	1,232,097	222
GRAND TOTAL ....	417,572	29,743,305	30,160,877	12,340

(a) Statistics collected triennially.

reported by any one holding.

(e) Not available.

(b) Components do not add to total because more than one breed of ram may be reported by any one holding.

(c) More than one-half Merino.

(d) British breed to the extent of one-half or more.

## Wool

Total wool production in 1968-69 amounted to 375.6 million lb, the highest ever recorded, compared with 170.4 million lb ten years earlier. Shorn wool in 1968-69 accounted for 359.0 million lb. It was shorn from 35.8 million sheep and lambs, the

average weight of wool shorn being 10.0 lb, compared with 9.0 lb in the previous season. The balance of the 1968-69 production comprised 3.28 million lb of dead and fellmongered wool, and 13.4 million lb of wool exported on skins.

During the war years wool was compulsorily acquired by the Commonwealth Government in accordance with an agreement with the United Kingdom. The scheme was administered by the Central Wool Committee and the price paid was determined by a system of appraisal which, however, operated within limits agreed upon by the two Governments. During this period large stocks of wool were accumulated and after the war an organisation was formed with the object of selling this surplus with the least possible disturbance to ruling prices. Government control of wool ceased after the war and wool auctions operated by members of the National Council of Wool Selling Brokers of Australia were resumed in Perth in 1946. These sales are attended by Australian and overseas buyers who bid for individual lots. Some wool is auctioned at sales conducted independently of the National Council and a significant portion of the clip is purchased on farms by wool dealers who buy direct from producers. In September 1957, auctions were held at Albany for the first time. Sales in Perth were discontinued in 1960 and the selling centre was transferred to Fremantle.

The number of sheep and lambs shorn, the average weight of wool shorn per sheep or lamb, and production of wool for five years to 30 June 1969 are given in the following table. The succeeding table shows the gross value of wool production for the same period.

## SHEEP SHORN AND WOOL PRODUCTION

Year	Sheep shorn (a)			Average weight of wool shorn (a)	Wool production (in the grease)			
	Sheep	Lambs	Total		Shorn (a)	Dead and fellmongered (b)	Exported on skins (c)	Total
	'000	'000	'000	lb	'000 lb	'000 lb	'000 lb	'000 lb
1965	18,437	4,742	23,179	8.6	198,200	2,795	6,040	207,035
1966	20,458	5,177	25,635	9.2	234,850	3,506	9,174	247,530
1967	22,824	5,857	28,681	9.1	261,000	2,852	8,723	272,575
1968	25,249	6,560	31,809	9.0	286,281	3,361	10,587	300,229
1969	28,438	7,404	35,842	10.0	358,953	3,283	13,414	375,650

(a) Figures for 1965 are for the year ended 31 March, those for 1966 and later relate to the year ended 30 June. (b) Figures for 1965 comprise dead wool for the year ended 31 March and fellmongered wool for the year ended 30 June, those for 1966 and later relate entirely to the year ended 30 June. (c) Year ended 30 June.

GROSS VALUES OF WOOL PRODUCTION  
(\$'000)

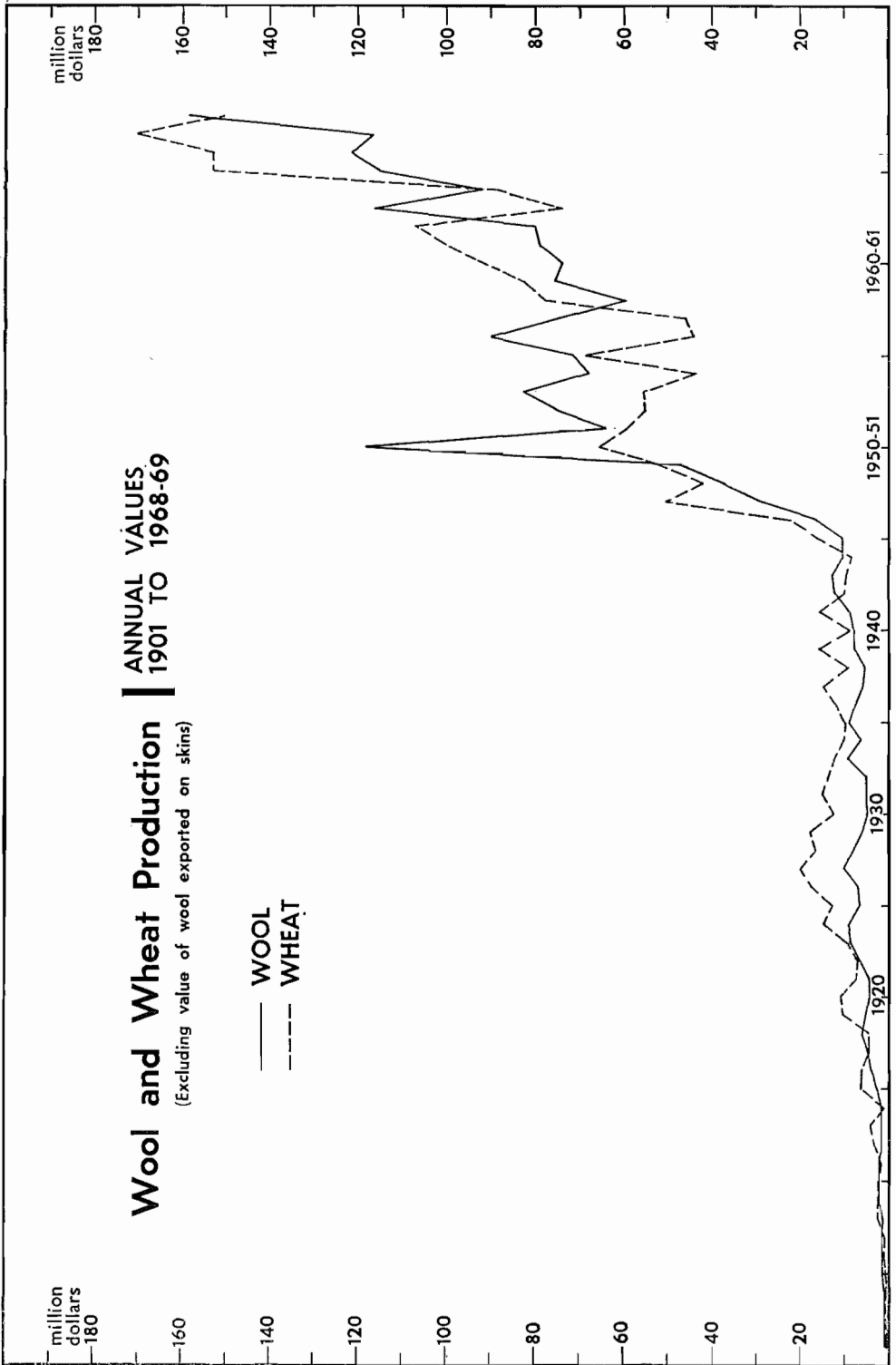
Year	Shorn wool (a)	Dead wool and fellmongered wool (b)	Wool exported on skins (c)	Total
1965	92,282	993	2,528	95,803
1966	114,049	1,134	3,015	118,198
1967	120,437	1,072	3,312	124,821
1968	115,756	897	2,493	119,146
1969	157,544	720	3,325	161,589

(a) See footnote (a) to table above.

(b) See footnote (b) to table above.

(c) Year ended 30 June.

Although the greater proportion of the wool clip is exported in the grease, scouring, or degreasing, is done in the State and degreased wool is an appreciable item in the external wool trade. During 1968-69 exports of greasy and degreased wool were 291.1 million lb and 27.2 million lb respectively. The most important buyers of greasy wool were Japan, the Union of Soviet Socialist Republics, France, the Federal Republic of Germany, the United Kingdom, the United States of America, Italy and Poland. Principal purchasers of degreased wool were the United States of America, the Union of Soviet Socialist Republics, the United Kingdom, the Federal Republic of Germany, Italy and Iran.



## Cattle

Cattle are classified according to the two main purposes of 'meat production' and 'milk production', irrespective of breed.

The table below shows the numbers of cattle for meat production kept on rural holdings at 31 March 1965 to 1969. The table on page 366 details, for 1966 to 1969, the numbers kept for milk production. Cattle numbers in each State and Territory at 31 March 1969 are given in the second table on page 369.

In 1969 the Kimberley Statistical Division carried 595,605 head of cattle for meat production, or 38·5 per cent of the State total. Other pastoral areas carried 107,624 head and agricultural areas 660,250.

The cattle which were originally shipped or driven overland from the other Australian Colonies to start the industry in the northern pastoral areas were predominantly shorthorn breeds, and these still form the great bulk of all cattle kept for meat production in those areas. Carcass weights, however, have been increased by importing better-type bulls, by improving watering facilities on the cattle stations and by the almost complete replacement of droving by the transport of the animals from stations to abattoirs in large road trucks.

Killing and freezing works operate at the ports of Wyndham, Broome and Derby and consignments of frozen and chilled beef from these centres go mainly to overseas destinations. Some of it is sent south for consumption in the metropolitan area and live cattle are also shipped from northern ports to be slaughtered for the metropolitan market. By far the greater proportion of beef consumed in the southern part of the State, however, is supplied from the agricultural areas, much of it being from stock culled from dairy herds.

The following table shows the numbers and proportions of cattle for meat production in agricultural areas and in pastoral areas at 31 March 1965 to 1969. The agricultural areas have become an increasingly important source of meat production in recent years, and now contain almost half of the cattle kept for this purpose, compared with little more than one-quarter ten years earlier.

CATTLE FOR MEAT PRODUCTION—NUMBERS AND DISTRIBUTION

Particulars	At 31 March—				
	1965	1966	1967	1968	1969
Number of head—					
In agricultural areas ....	411,142	451,062	532,608	596,104	660,250
In pastoral areas ....	627,262	610,705	625,304	638,834	703,229
Total ....	1,038,404	1,061,767	1,157,912	1,234,938	1,363,479
	per cent	per cent	per cent	per cent	per cent
Proportion of total—					
In agricultural areas ....	39·6	42·5	46·0	48·3	48·4
In pastoral areas ....	60·4	57·5	54·0	51·7	51·6

In two tables on page 364 herds of cattle kept for meat production at 31 March 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for meat production were carried on 8,304. Holdings of between 1,000 and 5,000 acres accounted for 41 per cent of the herds, and holdings which carried less than fifty cattle for meat production for 67 per cent of the herds. Of the holdings carrying cattle for meat production 7,266, or 88 per cent, had some established pasture and 5,231, or 63 per cent, had 200 acres and over.

**CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1966**  
**CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD**

Size of holding (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	Total herds	
1- 99 .....	384	130	53	41	17	....	....	....	....	625	4,553
100- 199 .....	203	139	82	106	73	12	....	....	....	615	1,251
200- 299 .....	144	103	78	105	126	32	2	....	....	590	1,058
300- 399 .....	97	88	56	90	91	56	6	1	....	485	837
400- 499 .....	71	45	42	62	112	56	11	3	....	402	632
500- 599 .....	38	40	34	49	81	66	15	3	....	326	523
600- 799 .....	82	58	49	77	120	88	27	14	....	515	907
800- 999 .....	86	46	27	46	87	73	30	15	....	410	786
1,000- 1,399 .....	162	78	53	80	110	95	36	25	....	639	1,501
1,400- 1,999 .....	266	111	70	76	121	68	23	30	....	765	2,082
2,000- 2,999 .....	383	134	100	122	151	68	33	26	....	1,019	3,148
3,000- 4,999 .....	365	129	85	113	159	69	23	34	1	978	3,306
5,000- 9,999 .....	173	46	46	62	64	58	19	32	2	502	1,435
10,000-19,999 .....	36	7	3	19	16	12	8	17	5	123	264
20,000-49,999 .....	6	1	1	1	2	3	4	3	4	25	57
50,000 and over .....	21	19	12	27	18	34	17	44	93	285	513
Total .....	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304	22,853

**CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1966**  
**CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE**

Area of established Pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	Total herds	
Nil .....	430	152	86	81	82	45	25	47	90	1,038	7,529
1- 9 .....	86	10	3	1	2	....	....	....	....	102	441
10- 19 .....	91	19	5	8	3	....	....	....	....	126	340
20- 29 .....	57	28	11	9	2	....	....	....	....	107	289
30- 49 .....	87	62	28	23	9	3	....	1	....	213	474
50- 69 .....	58	66	38	32	12	....	....	....	2	208	439
70- 99 .....	77	77	40	52	20	3	....	....	....	269	568
100- 149 .....	173	91	68	94	96	13	2	2	....	539	1,136
150- 199 .....	123	70	50	82	111	32	....	3	....	471	945
200- 299 .....	167	119	82	115	169	85	16	....	1	754	1,494
300- 399 .....	135	82	36	92	133	99	13	2	....	592	1,115
400- 499 .....	99	51	43	59	82	87	18	5	....	444	920
500- 699 .....	189	70	46	80	162	113	54	25	....	739	1,534
700- 999 .....	238	89	74	108	119	103	40	26	....	797	1,665
1,000-1,999 .....	363	156	126	167	220	121	50	80	2	1,285	2,814
2,000 and over .....	144	32	55	73	126	86	36	56	12	620	1,150
Total .....	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304	22,853

## Slaughtering

### LIVESTOCK SLAUGHTERED AND MEAT PRODUCED

Year	Livestock slaughtered (a)								Meat produced (b)	
	Sheep		Lambs		Cattle		Calves		Mutton and lamb	Beef and veal
	Number	Gross value (c)	Number	Gross value (c)	Number	Gross value (c)	Number	Gross value (c)		
1964-65 .....	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000	tons	tons
1965-66 .....	1,280	7,010	787	6,332	300	21,376	28	837	35,839	56,983
1966-67 .....	1,696	9,293	858	7,293	299	27,524	16	721	44,695	58,089
1967-68 .....	1,695	8,912	905	6,829	284	25,836	17	734	46,381	54,811
1968-69 .....	2,036	8,418	1,165	7,177	309	27,750	24	958	55,059	59,249
1969-70 .....	2,413	8,953	1,431	8,057	347	34,652	20	961	67,713	67,751

(a) Mainly slaughtering for human consumption but also includes small numbers of livestock slaughtered for boiling down. Details of pigs slaughtered and production of pigmeat are shown on page 369. (b) Dressed carcass weight; excludes condemned carcasses and offal. (c) Value 'on hoof' at principal market.

The previous table gives details of slaughterings in abattoirs, butcheries and on stations and farms. A table showing particulars of pigs slaughtered and pigmeat produced appears on page 369.

Beef from cattle slaughtered at Wyndham, Broome and Derby in the Kimberley Division is principally for export. The local market for meat is supplied mainly from abattoirs at Midland, Fremantle, Waroona, Harvey, Bunbury, Albany, Geraldton, Wooroloo and Kalgoorlie but most of these establishments also slaughter for the export trade. Small establishments operating in country towns also contribute substantially to total production, and most stations and many farms slaughter sufficient for all or part of their own requirements.

## DAIRYING

Compared with the wheat, wool and meat producing industries, dairying as a major well-organised rural activity is of fairly recent origin. Its growth was retarded initially by the difficulty of clearing heavily-timbered country in the South-West and the need for special methods of pasture establishment, but these problems have been progressively overcome and dairying is now a significant feature of primary production, although only limited development has taken place in recent years.

Until the establishment of the first butter factory at Busselton in 1898, dairy farming in Western Australia was essentially for the production of whole milk, although small quantities of farm butter were marketed. As more factories commenced processing, the industry steadily developed and its growth was further stimulated by the establishment of irrigation areas, the first at Harvey in 1916, and by the introduction of the Group Settlement Scheme in 1921. Another important factor in increasing production was the successful establishment of subterranean clover which resulted in a marked improvement in pastures.

The industry has been assisted by the extensive experimental work carried out by the Department of Agriculture and the advisory service which it provides on all aspects of dairy farming.

Price instability has been one of the major difficulties of the industry and in 1926 the 'Paterson Plan', which was a voluntary scheme of price stabilisation, was introduced. It met with considerable success but weaknesses finally became apparent and it was abandoned in 1934 in favour of the Dairy Products Marketing Regulation Act passed by the State Parliament. On 1 April 1946, Western Australia entered the voluntary butter price equalisation scheme, operated since 1936 by the Commonwealth Dairy Produce Equalisation Committee Limited, and in January 1947 the State extended its participation to include cheese. The Committee, which comprises certain members of the State Dairy Products Boards and other persons representing the industry, enters into agreements with manufacturers to secure to them equal rates from sales of butter and also of cheese, and for this purpose may fix basic prices at which these products sold in Australia or abroad are to be taken into account. The effect is that local and export trade are distributed among manufacturers in equitable proportions. The Committee fixes basic prices and equalises returns to factories through an Equalisation Fund. In addition, subsidies provided by the Commonwealth Government are distributed by the Committee, through factories to dairy farmers, by payments on butter and cheese manufactured. The fourth five-year stabilisation plan, which came into operation on 1 July 1967, provides a fixed bounty of \$27 million annually for the Australian industry. The average subsidy rates per cwt in 1968-69 were \$6.02 on butter and \$2.87 on cheese.

From 1942 until 30 June 1948, and again from 1 July 1949 to 30 June 1952, a subsidy was paid by the Commonwealth Government on milk supplied for the manufacture of processed milk products. By means of the *Processed Milk Products Bounty Act 1962*, the Commonwealth provided for payment of a maximum amount of \$700,000 as a bounty on exports of processed milk products during the year ended 30 June 1963. For the purpose of the Act, processed milk products are goods containing butterfat and produced

from cow's milk, but excluding butter, cheese and certain other specified goods. By later amendments to the Act, bounty was continued up to a maximum of \$1,000,000 in respect of exports during 1963-64 and of \$800,000 on those for 1964-65. Subsequent amendments extend the operations of the Act until 30 June 1972, the maximum amount of bounty payable each year being maintained at \$800,000.

The following table shows the numbers of cattle kept for milk production on rural holdings at 31 March 1966 to 1969.

### CATTLE FOR MILK PRODUCTION

Particulars	At 31 March—			
	1966	1967	1968	1969
	number	number	number	number
Bulls of dairy breeds used or intended for service—				
Aged one year and over .....	4,438	3,324	3,087	2,739
Calves (aged under one year) .....	1,429	1,615	1,301	1,303
Total .....	5,867	4,939	4,388	4,042
Cattle used or intended for production of—				
Milk or cream for sale—				
Cows—In milk .....	42,777	38,691	39,552	39,656
Dry .....	66,514	64,229	59,995	57,466
Heifers—Springing (within 3 months of calving) .....	24,290	21,509	21,145	19,228
Other (aged one year and over) .....	27,778	28,395	28,479	27,141
Calves (aged under one year) .....	32,051	31,941	29,536	27,709
Milk or cream for use on rural holdings—				
House cows and heifers .....	10,182	9,426	8,903	7,533
Total .....	203,592	194,191	187,610	178,733
Total cattle for milk production .....	209,459	199,130	191,998	182,775

In the next two tables herds of cattle kept for milk production at 31 March 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for milk production were carried on 3,685. Holdings of between 1,000 and 5,000 acres accounted for 25 per cent of the herds but 79 per cent of these herds had less than ten head each. All holdings with less than ten head accounted for 38 per cent of the herds in the State. Of the holdings carrying cattle for milk production 3,375, or 92 per cent, had some established pasture and 1,971, or 53 per cent, had 200 acres and over.

### CATTLE FOR MILK PRODUCTION (a) AT 31 MARCH 1966 CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	Total herds	
1- 19 .....	58	12	3	2	....	....	....	....	....	75	2,799
20- 29 .....	15	11	2	2	....	....	....	....	....	30	586
30- 49 .....	26	6	12	6	....	....	....	....	....	50	530
50- 69 .....	16	7	10	8	....	....	....	1	....	48	320
70- 99 .....	20	8	13	22	8	8	....	....	1	80	318
100-149 .....	23	9	12	72	46	29	8	6	....	205	661
150-199 .....	35	10	18	55	58	48	22	8	4	258	590
200-299 .....	48	3	17	67	110	132	72	55	12	516	1,058
300-399 .....	35	4	12	40	79	83	54	80	22	409	837
400-499 .....	28	3	5	19	38	41	43	68	37	282	632
500-699 .....	52	3	3	20	35	62	41	90	58	364	1,039
700-999 .....	62	6	4	14	26	23	23	52	54	264	1,177
1,000-1,999 .....	76	13	10	6	5	14	14	20	29	187	1,501
1,400-1,999 .....	152	11	6	1	4	3	7	6	27	217	2,082
2,000-4,999 .....	454	25	5	2	5	4	2	3	16	516	6,454
5,000 and over .....	160	11	4	1	1	2	1	1	3	184	2,265
Total .....	1,260	142	136	337	420	449	287	390	264	3,685	22,853

(a) Excludes herds with no cattle for milk production other than house cows.

**CATTLE FOR MILK PRODUCTION (a) AT 31 MARCH 1966**  
**CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE**

Area of established pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	Total herds	
Nil	227	20	15	12	9	14	5	3	5	310	7,529
1-9	31	3	5	4	1	1	1	1	1	36	441
10-19	28	15	9	2	1	1	1	1	1	54	340
20-29	21	10	9	2	2	4	1	3	1	47	289
30-39	33	10	23	16	4	6	1	3	1	94	474
40-49	34	6	21	37	11	15	4	1	1	117	439
50-59	34	7	16	78	34	15	4	1	3	186	538
60-69	28	7	9	103	134	88	23	11	1	449	1,156
70-79	69	11	8	26	111	140	61	29	9	421	945
100-149	34	3	9	26	68	108	94	124	24	532	1,494
150-199	75	4	1	14	19	41	58	98	47	351	1,115
200-299	66	7	1	9	12	8	20	58	42	215	920
300-399	61	1	4	8	7	13	13	41	64	257	1,334
400-499	98	8	5	5	5	7	7	14	33	212	1,665
500-599	126	16	4	1	1	2	1	5	32	279	2,814
600-699	220	13	5	1	1	1	1	1	3	125	1,150
700-799	109	8	2	1	1	1	1	1	1	125	1,150
1,000-1,999	220	13	5	1	1	1	1	1	1	125	1,150
2,000 and over	109	8	2	1	1	1	1	1	1	125	1,150
Total	1,260	142	136	337	420	449	287	390	264	3,685	22,853

(a) Excludes herds with no cattle for milk production other than house cows.

The quantity and gross value of whole milk produced in each of the years 1964-65 to 1968-69 are given in the following table.

**WHOLE MILK PRODUCTION (a)**

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Quantity	61,883	61,865	55,611	55,411	58,222
Gross value (b)	15,819	16,220	15,087	15,335	15,848

(a) Year ended 30 June. Includes milk used for processing into butter, cheese and condensery products. Details of butter and cheese production appear in Part 2 of this Chapter. (b) Includes subsidy paid by Commonwealth Government.

### Pig Raising

For many years the rearing of pigs has been carried on in conjunction with the production of butterfat as cream, thus providing a practical means of using the skim milk obtained. This is now on the decline, however, owing to the current trend for whole milk to be supplied in bulk by the dairy farmers direct to processing plants. In the main, pigs are now raised on grain-growing holdings and in 1969 almost 70 per cent of the pigs in the State were in the wheat belt. There are also a number of farmers in the districts around Perth who specialise in pig raising and in fattening for market pigs obtained from country areas.

The principal breeds in Western Australia are the Berkshire, Large White and Landrace and crosses of these breeds. Pigs are reared for bacon and ham as well as pork and, although the greater proportion of production is consumed locally, there is some export trade, mainly to other Australian States. In 1968-69 a total of 1,234,026 lb of pork was shipped interstate and 181,936 lb overseas, mainly to Singapore, Japan, Christmas Island (Indian Ocean), the Trucial States and Bahrein.

In two tables on page 368 pig herds at 31 March 1966, in size groups, are classified according to the size of the holding and the size of the herd of cattle for milk production on the holding. Of the 22,853 rural holdings of all types, pigs were carried on 3,537. Holdings with between 1,000 and 5,000 acres of land accounted for 54 per cent of the pig herds and those which carried less than fifteen head for 34 per cent of the herds. Of the holdings carrying pigs 1,033, or 29 per cent, had some cattle for milk production and 629, or 18 per cent, had ten or more cattle for milk production.



**PIG HERDS AT 31 MARCH 1966**  
**CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD**

Size of holding (acres)	Size of pig herd (numbers)										Total, all rural holdings
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	Total herds	
1- 19	23	19	8	7	10	6	5	20	22	120	2,799
20- 29	7	1	6	4	2	2	2	4	9	35	586
30- 49	12	5	2	4	9	4	....	10	8	54	530
50- 69	9	8	1	1	7	2	2	4	3	37	320
70- 99	17	3	2	2	7	4	2	8	4	49	318
100- 149	27	5	9	9	5	9	6	22	9	101	661
150- 199	22	11	10	3	13	8	5	11	5	88	590
200- 299	35	33	23	21	25	5	8	24	8	182	1,058
300- 399	19	16	13	12	28	11	9	16	8	132	837
400- 499	18	14	10	12	10	10	6	16	4	100	632
500- 699	23	19	17	14	21	21	10	21	5	151	1,039
700- 999	24	25	18	13	25	28	9	28	7	177	1,177
1,000-1,399	23	30	35	21	29	27	18	42	15	240	1,501
1,400-1,999	46	40	45	40	64	50	35	65	21	406	2,082
2,000-4,999	107	112	131	120	223	161	93	238	83	1,268	6,454
5,000 and over	35	31	41	15	57	52	35	88	43	397	2,269
Total	447	372	371	298	533	400	245	617	254	3,537	22,853

**PIG HERDS AT 31 MARCH 1966, ACCORDING TO SIZE OF HERD  
OF CATTLE FOR MILK PRODUCTION AND SIZE OF PIG HERD**

Size of herd of cattle for milk production (numbers)	Size of pig herd (numbers)										Total, all rural holdings
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	Total herds	
Nil	287	238	260	203	396	289	178	450	203	2,504	19,168
1- 4	46	42	34	30	42	43	28	69	30	364	1,260
5- 9	8	2	7	7	6	2	1	4	3	40	142
10- 14	6	2	....	1	1	4	1	3	....	18	68
15- 19	2	1	....	1	5	2	2	4	....	17	68
20- 29	12	9	4	4	7	1	....	3	....	40	152
30- 39	13	9	6	6	7	5	1	9	....	56	185
40- 49	14	9	10	7	12	4	1	3	....	60	210
50- 59	5	13	12	10	12	8	4	6	2	72	210
60- 69	14	8	11	6	15	4	4	5	1	68	244
70- 79	12	9	7	5	10	4	9	13	6	75	205
80- 89	10	9	5	6	8	8	3	14	1	64	169
90- 99	....	6	4	3	3	5	2	6	1	30	118
100-149	8	10	8	6	9	12	8	23	5	89	390
150-199	6	1	1	2	....	7	2	3	....	22	133
200 and over	4	4	2	1	....	2	1	2	2	18	131
Total	447	372	371	298	533	400	245	617	254	3,537	22,853

In the table below, the numbers of pigs on rural holdings at 31 March are shown for each of the years 1965 to 1969. The number of pigs at 31 March 1969 was 219,787, maintaining the steady increase of previous years and exceeding the previous record of 217,910 reached in 1940.

**PIG NUMBERS**

At 31 March—								Boars	Breeding sows	Other pigs (a)	Total
1965	....	....	....	....	....	....	....	3,098	19,250	114,844	137,192
1966	....	....	....	....	....	....	....	3,110	20,696	120,216	144,022
1967	....	....	....	....	....	....	....	3,302	23,652	134,029	160,983
1968	....	....	....	....	....	....	....	3,653	26,913	151,941	182,507
1969	....	....	....	....	....	....	....	4,076	32,143	183,568	219,787

(a) Includes baconers, porkers, suckers, weaners and slips.

The next table shows the numbers and gross value of pigs slaughtered in each of the years 1964-65 to 1968-69, together with the quantity of meat produced. Factory production of bacon and ham is also shown.

## PIGS SLAUGHTERED (a) AND MEAT PRODUCED

Year	Pigs slaughtered		Pigmeat produced (c)	Bacon and ham produced (d)
	Number	Gross value (b)		
1964-65	182,822	\$'000 5,915	'000 lb 22,089	'000 lb 8,921
1965-66	195,439	5,953	23,395	9,605
1966-67	214,637	6,021	25,948	10,259
1967-68	243,312	7,809	29,476	11,404
1968-69	263,774	7,407	31,375	12,133

(a) Comprises slaughtering in abattoirs, butcheries and on stations and farms.  
 (b) Value 'on hoof' at principal market or at factory door.  
 (c) Dressed carcass weight; excludes condemned carcasses and offal but includes quantities used to produce bacon and ham.  
 (d) Factory production.

## LIVESTOCK IN AUSTRALIA

The following table gives details of livestock numbers in each State and Territory of Australia at 31 March 1969.

LIVESTOCK NUMBERS AT 31 MARCH 1969—AUSTRALIA  
(Thousands)

State or Territory	Sheep	Cattle				Pigs
		Bulls (1 year and over) used or intended for service	For production of milk or cream	Mainly for meat production	Total	
New South Wales	68,153	91	958	3,816	4,864	690
Victoria	30,185	81	1,910	1,887	3,878	422
Queensland	20,324	141	742	6,784	7,668	535
South Australia	18,392	19	226	620	865	288
Western Australia	32,901	29	179	1,338	1,546	220
Tasmania	4,395	10	240	335	586	95
Northern Territory	(a) 7	28	1	1,148	1,177	2
Australian Capital Territory	246	(b)	2	11	14	(b)
Australia	(c) 174,602	400	4,258	15,940	20,598	2,253

(a) At 30 June 1969.

(b) Less than 500.

(c) See footnote (a).

## POULTRY FARMING

Poultry farming in Western Australia is now mainly a specialist industry and a large proportion of the egg production is on holdings which carry sufficient birds to make the activity the sole or predominant source of income. Most of the commercial poultry farms are situated in the Perth Statistical Division, within a thirty-mile radius of Perth, but birds are also kept for commercial production on orchards, dairy farms and wheat farms throughout the agricultural areas.

On specialist poultry farms modern developments in breeding, sexing and nutrition have resulted in considerably higher egg production per bird. Egg-producing birds are largely first-cross hens, bred mainly from White Leghorn cocks and Australorp hens. Production of poultry meat has increased considerably in recent years. It is now predominantly a specialised industry using strains of birds which have been developed specifically for meat production.

Under the *Marketing of Eggs Act, 1945-1970*, all producers in the South-West Land Division are required to market their eggs either through the Western Australian Egg Marketing Board or under the permit system which is administered by the Board. The principal purpose of this legislation is to ensure satisfactory disposal of eggs, including that surplus over local requirements which is consistently produced and which must be sold overseas at prices which usually do not offer a reasonable return to the producer. In order to provide a fund with which to equalise returns from local and export sales the

Board, prior to 1 July 1965, made a charge on all eggs sold locally. This charge was subsequently replaced by a levy imposed by Commonwealth legislation which came into operation on 1 July 1965.

The *Poultry Industry Levy Act 1965-1966* provides for the imposition throughout Australia of a levy on hens not less than six months old kept for commercial purposes. Special exemptions are made in respect of 'broiler breeder hens', being hens used to produce chickens for table purposes. The levy, which does not apply to flocks of fewer than twenty-one hens, nor to the first twenty hens in any flock, is payable fortnightly and may not exceed \$1 annually per bird. In July 1970 the levy stood at 4c per fortnight for each hen.

Under the *Poultry Industry Levy Collection Act 1965-1966* the authority responsible for the collection of the levy in this State is the Western Australian Egg Marketing Board. The *Poultry Industry Assistance Act 1965-1966* establishes a Poultry Industry Trust Fund for the receipt of the amount of the levy and other moneys. The Act provides for payment from the Fund to a State, by way of financial assistance, of such amounts as the Commonwealth Minister may determine upon the recommendation of The Council of Egg Marketing Authorities of Australia.

Although the Commonwealth levy replaces the egg equalisation levies formerly imposed by the several State authorities for the purpose of equalising returns from local markets and export sales, the State authorities continue to make charges necessary to defray the costs of handling, grading and marketing of eggs.

In 1968-69 Saudi Arabia, the United Kingdom, the Trucial States, Kuwait, the Bahrain Islands, and India were the most important overseas markets for eggs in the shell. Exports of egg pulp in 1968-69 were valued at \$119,340.

#### POULTRY NUMBERS (a)

At 31 March—								Fowls	Ducks	Turkeys	Geese
1965	....	....	....	....	....	....	....	2,006,988	7,851	10,005	643
1966	....	....	....	....	....	....	....	1,914,759	15,729	15,621	1,190
1967	....	....	....	....	....	....	....	2,460,144	25,831	22,678	6,692
1968	....	....	....	....	....	....	....	2,865,676	30,254	23,225	(b)
1969	....	....	....	....	....	....	....	3,299,907	22,078	21,399	(b)

(a) Figures from 1967 include details of poultry for non-commercial purposes on rural holdings which are excluded in previous years.

(b) Not available.

#### EGGS SOLD AND POULTRY SLAUGHTERED FOR TABLE PURPOSES

Year ended 31 March—								Eggs sold (a)		Poultry slaughtered for table purposes (b)	
								Quantity	Gross value	Dressed weight	Gross value
								'000 dozen	\$'000	'000 lb	\$'000
1965	....	....	....	....	....	....	....	8,627	3,884	10,483	3,139
1966	....	....	....	....	....	....	....	10,063	4,735	12,234	3,666
1967	....	....	....	....	....	....	....	9,603	4,863	16,634	4,922
1968	....	....	....	....	....	....	....	10,946	4,811	18,759	5,501
1969	....	....	....	....	....	....	....	11,859	5,852	22,653	6,412

(a) Figures from 1967 include details of poultry for non-commercial purposes on rural holdings which are excluded in previous years.

(b) Year ended 30 June.

#### BEE KEEPING

Commercial producers of honey in Western Australia may be divided into three categories. There are a comparatively small number of specialist apiarists, engaged solely or mainly in honey production, who operate on a large scale and transport their hives from district to district. There are also some substantial producers who are engaged in agricultural activities and use their farms as a central site from which they may transport their hives

to other areas as necessary. Finally there are the many farmers and orchardists who keep a few hives and produce honey as a minor supplementary activity. This pattern of production is illustrated by the following table.

BEE KEEPERS, BEEHIVES AND HONEY PRODUCTION (a)—1968-69

Classification of hives (a)	Bee keepers (b)		Productive beehives (c)		Honey production	
	Number	Proportion of total (per cent)	Number	Proportion of total (per cent)	Quantity	Proportion of total (per cent)
5- 19 .....	186	46.50	881	2.49	lb 36,314	0.55
20- 49 .....	85	21.25	1,363	3.85	71,658	1.09
50- 99 .....	27	6.75	977	2.76	87,640	1.34
100-199 .....	32	8.00	2,944	8.32	302,003	4.61
200-299 .....	22	5.50	4,202	11.87	412,532	6.30
300-499 .....	20	5.00	6,914	19.53	1,443,717	22.03
500-799 .....	19	4.75	9,688	27.37	2,214,699	33.80
800 and over .....	9	2.25	8,425	23.80	1,984,050	30.28
Total .....	400	100.00	35,394	100.00	6,552,613	100.00

(a) Excludes details of bee keepers with less than 5 hives. (b) At 30 June 1969. (c) Represents the number of hives at 30 June 1969 from which honey was taken during the year and excludes hives kept for production but from which no honey was taken, nuclei, pollination hives, etc.

In 1968-69 exports of honey totalled 3,626,613 lb, the export value being \$470,357. The principal buyers were Denmark, which purchased 945,248 lb; the United Kingdom, 930,062 lb; and the Federal Republic of Germany, 409,346 lb.

BEEHIVES AND PRODUCTION OF HONEY AND BEES-WAX (a)

Year	Beehives (b)		Honey production		Bees-wax production	
	Productive (c)	Unproductive (d)	Quantity	Gross value	Quantity	Gross value
1964-65 .....	number 39,323	number 9,539	'000 lb 8,066	\$'000 520	'000 lb 106	\$'000 42
1965-66 .....	41,749	9,782	10,923	650	138	52
1966-67 .....	40,830	10,402	6,882	440	99	44
1967-68 .....	37,960	10,823	(e) 3,410	212	49	27
1968-69 .....	35,394	10,299	6,553	491	94	51

(a) Excludes particulars of bee keepers with less than 5 hives. (b) Number at 30 June. (c) Hives from which honey was taken during the year. (d) Includes hives kept for production but from which no honey was taken during the year, nuclei, pollination hives, etc. (e) Lowest recorded since 1954-55.

## THE DEPARTMENT OF AGRICULTURE

Brief references have been made earlier in this Part to the important services rendered to rural producers by the Department of Agriculture. The Department is the branch of the State Government Service responsible for bringing scientific advice to farmers and pastoralists, for carrying out research into a wide range of technical problems and for administering Acts of Parliament dealing with agricultural and pastoral matters. Its activities can be classified under the four headings: investigation or research; advisory, now more commonly called 'extension' functions; provision of certain services for the assistance of the man on the land; and regulatory work which consists of carrying out the provisions of some of the laws relating to agriculture.

The operations of the Department are organised under a series of Divisions and Branches, the heads of which are responsible to the Director of Agriculture. The Divisions are Animal (including Animal Health and Nutrition Laboratory and sections for Veterinary Services, Animal Husbandry, Apiculture, Poultry and Brands), Wheat and Sheep (including the Cereal Products and Fleece Testing Laboratories), Dairy, Horticulture (covering Fruit and Vegetables), Soils (including Soil Conservation and Irrigation),

Plant Research, Biological Services (including Plant Pathology, Entomology, Botany, Seed Certification and Weed Control), and North-West. In addition there are separate sections covering Rural Economics and Marketing, Information, Abattoirs and Library and close liaison is maintained with the Agriculture Protection Board. Muresk Agricultural College was formerly controlled and staffed by the Department but, as from 1 January 1969, the College became part of The Western Australian Institute of Technology.

Sections of government administration known as Departments of Agriculture usually originated in the demands of farmers for government assistance in coping with their technical problems. The Western Australian Department of Agriculture had its origin in a Bureau of Agriculture which was formed in 1894. In 1898 the Department of Agriculture was established and absorbed the staff of the Bureau. Up to this time, some seventy years after the first settlement, agriculture in Western Australia had made little progress. The area of cleared arable land was less than 2 per cent of the present area. Superphosphate had not been used on Western Australian farms and wheat varieties suitable for the drier districts to the east of Northam were not then available. There was little comprehension of the many problems associated with land development and not much public appreciation of the part that science might play in solving them.

From small beginnings the Department's responsibilities and activities extended as agriculture developed. In the first quarter of a century of its existence, expansion and consolidation of farming in the wheat belt overshadowed other activities. That was only natural, as the acreage of wheat for grain expanded from 200,000 in 1905 to nearly 4 million acres in 1930, and for much of that time the State's development was synonymous with wheat belt expansion.

### State Farms and Research Stations

Perhaps the most important work in the Department's first ten or fifteen years was that concerned with the establishment of experiment farms, or 'State farms' as they were at first called. The first of these had its origin in plots which were established at Hamel in 1896. Valuable work was carried on at this centre for nearly twenty years in connection with the growing of potatoes, fruit, cereals, hops, fodder crops and pasture, and some success was achieved with wheat breeding.

Government farms were opened at Narrogin in 1901 and at Nabawa, twenty-five miles north of Geraldton, in 1902. In 1907 a farm at Nangeenan, near Merredin, was taken over from the Lands Department and is now the Merredin Research Station. In the same year a farm was established in the South-West at Brunswick in order to provide object lessons in dairying, as it was felt that there were great possibilities of expanding the dairying industry. After functioning for several years this farm was closed and the land was subsequently used for closer settlement purposes.

In 1911 a change was made in the policy of the government farms in the wheat belt and their character changed from 'experimental' to 'experiment' farms and ultimately to 'research stations'. Instead of being conducted mainly with the object of producing revenue they were to be used primarily for collecting information concerning local conditions that would be of value to the district. In addition, wheat, oats and barley were bred and pure pedigree seed produced. It would be difficult to over-estimate the subsequent value of the farms in this new role, which is still an important function although the emphasis has now changed to complex experiments which are of value to the study of farms as economic units. In later years more research stations were established and they now number twenty-three.

Research stations at Nabawa, Badgingarra, Wongan Hills, Merredin, Beverley, Mount Barker, Newdegate, Salmon Gums and Gibson deal with agriculture in the cereal-growing and sheep-raising districts and stations at Bramley (though dealing mainly with beef cattle), Denmark and Wokalup serve the dairying districts. Vegetable research stations are situated at Medina and Manjimup, a pig research unit has been established at the Medina station and beef cattle research is taking place at the Northam Research

Station. The poultry industry is served by a station at Herdsman Lake. A viticultural research station has been established at Upper Swan and a horticultural research station at Stoneville in the Darling Range to the east of Perth.

The Kimberley Research Station, operated in conjunction with the Commonwealth Scientific and Industrial Research Organization, is concerned with problems of irrigation in relation to agriculture in the tropics, with particular reference to the agricultural settlement now taking place on the Ord River. The Fitzroy Pastoral Research Station in West Kimberley studies problems of the beef cattle industry while at Abydos, near Port Hedland, regeneration of overgrazed pastoral country and a study of sheep breeding problems are the main concerns. At the Gascoyne Research Station at Carnarvon, problems of growing tropical fruits and winter vegetables, and pastoral problems in the area are being investigated. The Wiluna Groundwater Research Station is for the study of the controlled use of underground water supplies, lucerne growing and sheep feeding problems.

### Advisory Services

Extension work is perhaps the Department's most important function and has exercised a powerful influence in publicising and accelerating the adoption of better farming methods. It is difficult to assess the results of any educational undertaking in terms of money, but the desirability of having a well-informed farming community, receptive to new ideas, is obvious. Although the best method of taking advice to farmers is for the technical officer to visit farms for discussion with the farmer on his own property, this is unfortunately not always possible as an officer may have between 500 and 1,000 farms in his district. Individual visits often have to be restricted to cases where a specific request has been made or where some urgent action is required.

Extension officers support the formation of farmers' organisations and attend meetings and field days where talks can be given to groups of farmers. Organised group discussions on major problems such as farm management are now a particular feature. It is estimated that in the past year approximately 8,000 farmers attended nearly 160 field days with which the Department was associated. Field experiments, both at the stations and on farmers' properties, form an excellent basis for demonstrations and talks. The various competitions in which extension officers act as judges provide another means of bringing farmers together for discussion. These competitions are generally concerned with crops and pastures but may include other types such as those conducted by Junior Farmers' Clubs for show exhibits and for debates. Extensive use is made of the radio which, in Western Australia, probably reaches more people than does any other medium. Between 200 and 300 broadcasts are given by departmental officers each year and in addition to a weekly press service a series of television programmes is prepared. In addition, the Department produces several publications including a monthly *Journal of Agriculture*, which has a circulation of about 20,000, a special quarterly publication for dairy farmers and bulletins covering a wide range of subjects.

Advisory work is not concentrated in a single Division but is carried out by several Divisions and Branches of the Department. In recent years to provide local services for farmers, groups of officers have been stationed at Albany, Armadale, Bridgetown, Broome, Bunbury, Busselton, Carnarvon, Denmark, Derby, Esperance, Geraldton, Halls Creek, Harvey, Jerramungup, Kalamunda, Kalgoorlie, Katanning, Kununurra, Lake Grace, Manjimup, Margaret River, Merredin, Midland, Moora, Mount Barker, Narrogin, Northam, Three Springs, Wiluna and at the Kimberley Research Station. An officer is also stationed at each of the following places: Camballin, Donnybrook, Gosnells, Kellerberrin, Koorda, Muchea, Mundaring, Narembeen, Pinjarra, Port Hedland, Trayning and Wyndham.

### Research Activities

In the field of investigation and research, problems which have been dealt with would comprise a lengthy list and only a few of the more important can be mentioned here. The value to the State of cereal-breeding activities is well known. Cereal varieties pro-

duced by the Department have increased the income of farmers by many millions of dollars over the years in which they have been grown. The introduction of new plant species and varieties, the evaluation of their suitability for local conditions and the determination of rotations for improving yields and maintaining soil fertility are important features of the work in cereal-growing districts.

Research into plant diseases and deficiencies forms another important section of the Department's investigational work. Considerable success has been achieved in the recognition and remedying of deficiencies of trace elements in soils, notably of copper, zinc and molybdenum. As a result of this work, fertilisers containing trace elements have been applied in recent years to extensive areas of the State's farming land. These investigations, together with allied work on superphosphate and sulphur and the establishment of subterranean clover pastures, constitute the technical factors which have made possible the rapid post-war expansion of light land development.

In the pastoral areas of the North-West the sheep-carrying capacity of large tracts of country has been seriously reduced by drought and overgrazing. Recent work by officers of the Department has shown that much of this country can be reclaimed by adopting systems of grazing management different from those employed in the past.

Nutritional disorders and diseases of farm animals cause considerable loss to farmers and pastoralists. Some of the Department's most notable successes have been achieved when dealing with problems in this field, which include enzootic ataxia, enterotoxaemia, toxic paralysis, clover disease in sheep, copper and cobalt deficiencies in cattle, contagious pleuro-pneumonia, Kimberley horse disease, plant poisoning of stock and infertility in dairy cows. Problems of sheep infertility, of lupinosis, brucellosis in sheep and in beef herds in the South-West and of mastitis in dairy cows are among investigations at present in progress.

A soil conservation service was established in the Department in 1947. Since then a great deal of information about the incidence and nature of erosion has been collected and many farmers have been assisted with their erosion problems. Considerable attention has also been given to the salt-land problem in the agricultural districts.

In somewhat more restricted fields the development of nematode resistant rootstocks and the use of a hormone spray instead of cincturing, for currant vines, are noteworthy changes in agricultural practice resulting from investigations by the Department. The selection of the rust-resistant runner bean variety, 'Westralia', has greatly reduced one of the hazards with which the bean grower has to contend.

### **Agriculture Protection**

For the control, prevention and eradication of noxious weeds and vermin, there is an Agriculture Protection Board which operates in collaboration with the Department of Agriculture.

The Board, which was established in 1951 following recommendations by a Royal Commission, is constituted under the provisions of the *Agriculture Protection Board Act, 1950-1970*, and comprises the Director of Agriculture or his deputy, as Chairman; the Chief Vermin Control Officer of the Department of Agriculture; an officer of the State Treasury; two representatives of the agricultural industry; one representative of the pastoral industry; and five representatives of local government authorities.

The income of the Board consists of appropriations from the Consolidated Revenue Fund and other moneys as prescribed by the Agriculture Protection Board Act.

For the purposes of the Agriculture Protection Board Act, the term 'noxious weeds' means those plants which are so proclaimed or declared under the *Noxious Weeds Act, 1950-1970*. 'Vermin' means any animal, bird or insect proclaimed to be vermin as provided by the *Vermin Act, 1918-1970*, and includes rabbits, foxes, dingoes, sparrows, emus, starlings, Argentine ants and grasshoppers.

The Board formulates policies for the control, prevention and eradication of noxious weeds and vermin, advises on methods, directs and assists in general operations, provides services to help local government authorities and landholders in destruction work and

conducts scientific research and investigations for the improvement of control techniques and policies. Control work extends to Crown lands, including reserves, for the benefit of adjoining landholders.

Improvements in the control of both noxious weeds and vermin have resulted from the activities of the Agriculture Protection Board and there have been some notable successes, including a great reduction in rabbit numbers effected by the use of myxomatosis virus and by organised drives for their destruction, mainly by poisoning.

### Other Services

The Department operates certain services which assist the producer to increase his efficiency. Probably the best known is the production of pure pedigree varieties of seed wheat, oats and barley. These are of value to the cereal grower, who is able to obtain his requirements at moderate cost. Sponsoring and supervising the production of approved lines of seed, notably potatoes and beans, has led to the wide use of these specialised lines with a resulting increased yield, and certification of pure lines of pasture seed gives farmers a guarantee of quality in the seed they buy. Assistance to dairy farmers to form herd-testing units, thus enabling them to gauge the performance of their herds, is another service of similar nature. Assistance and technical advice is given to farmers concerned with the installation of irrigation schemes and the preparation of land for irrigation.

The producers who benefit from the services mentioned in this section pay something for them, but not necessarily the full amount of the cost of providing them.

### Administration of Acts

The Department of Agriculture is responsible for administering some fifty Acts concerning a wide range of subjects. Some of the more important relate to animal and plant diseases and insect pests, industry trust funds, soil conservation, vermin control, marketing of agricultural products and registration of feeding stuffs, fertilisers and stock brands.

### ARTIFICIAL BREEDING BOARD

The Artificial Breeding Board was established under the *Artificial Breeding Board Act, 1965* which came into operation by proclamation on 16 December 1966. The Act provides that the board shall consist of a chairman, vice-chairman and three other members, of whom one shall be a veterinary surgeon. Responsibility for promotion of artificial breeding of stock has been placed in the hands of the Board which, in effect, assumed control of artificial insemination work established in 1956 by the Department of Agriculture at the Wokalup Research Station.

### FARM MANAGEMENT SERVICE LABORATORY

The University of Western Australia, by resolution of the Senate, approved the establishment of the Farm Management Service Laboratory within the University in 1966. The aims of the Laboratory are to develop concepts and services in management accounting, planning and animal breeding which are specially suited to the needs of farmers; to make these developments available to farmers; and to use information processed by the Laboratory for teaching and research within the Institute of Agriculture at the University of Western Australia.

The Laboratory hires its own staff and computer time, and pays its own operating expenses. Fees are charged to cover costs, though initially the Laboratory has been drawing on capital grants made to it by various firms and institutions through the John Thomson Agricultural Economics Centre at the Institute of Agriculture.

Services provided by the Laboratory include computer techniques for planning farm businesses and solving farm problems. A set of programmes is being developed to enable farmers to breed for maximum genetic improvement of economically important traits in sheep flocks at least cost. Pilot studies are under way.



Some 450 farmers in Western Australia enrolled to obtain the Managerial Information Service of the Laboratory in its initial year. The service has since been extended to farmers outside this State.

### TRAPPING

Although trapping has been carried on from the first years of settlement, it has never been an important industry. In 1968-69 the recorded gross value was only \$1,211,000 but reliable and complete information is difficult to obtain and this amount could therefore be deficient.

Kangaroos have been destroyed in great numbers from the earliest days, the principal reason for the organised destruction being the damage done to pastures and fencing. As early as 1849 the export of kangaroo skins for the year was no less than 12,387. Skins are still exported and some are also used in local factories. Kangaroo meat is used as pet food.

The earliest recorded export of rabbit skins relates to the year 1900 and the meat and skins of these animals have been a source of income to trappers ever since. In an attempt to reduce the damage done to crops and pastures, various methods of control have been adopted and since the second World War an intensive campaign, using myxomatosis virus, poisons and warren ripping, has met with considerable success. As a result, the quantity of rabbit meat produced and the number of skins exported and treated locally have declined greatly and are now insignificant.

Wild goats are slaughtered and the meat is exported.

The skins of animals other than marsupials and rabbits, together with exports of Western Australian fauna, are taken into account in the value of the trapping industry (see tables on page 339) but these are not significant.

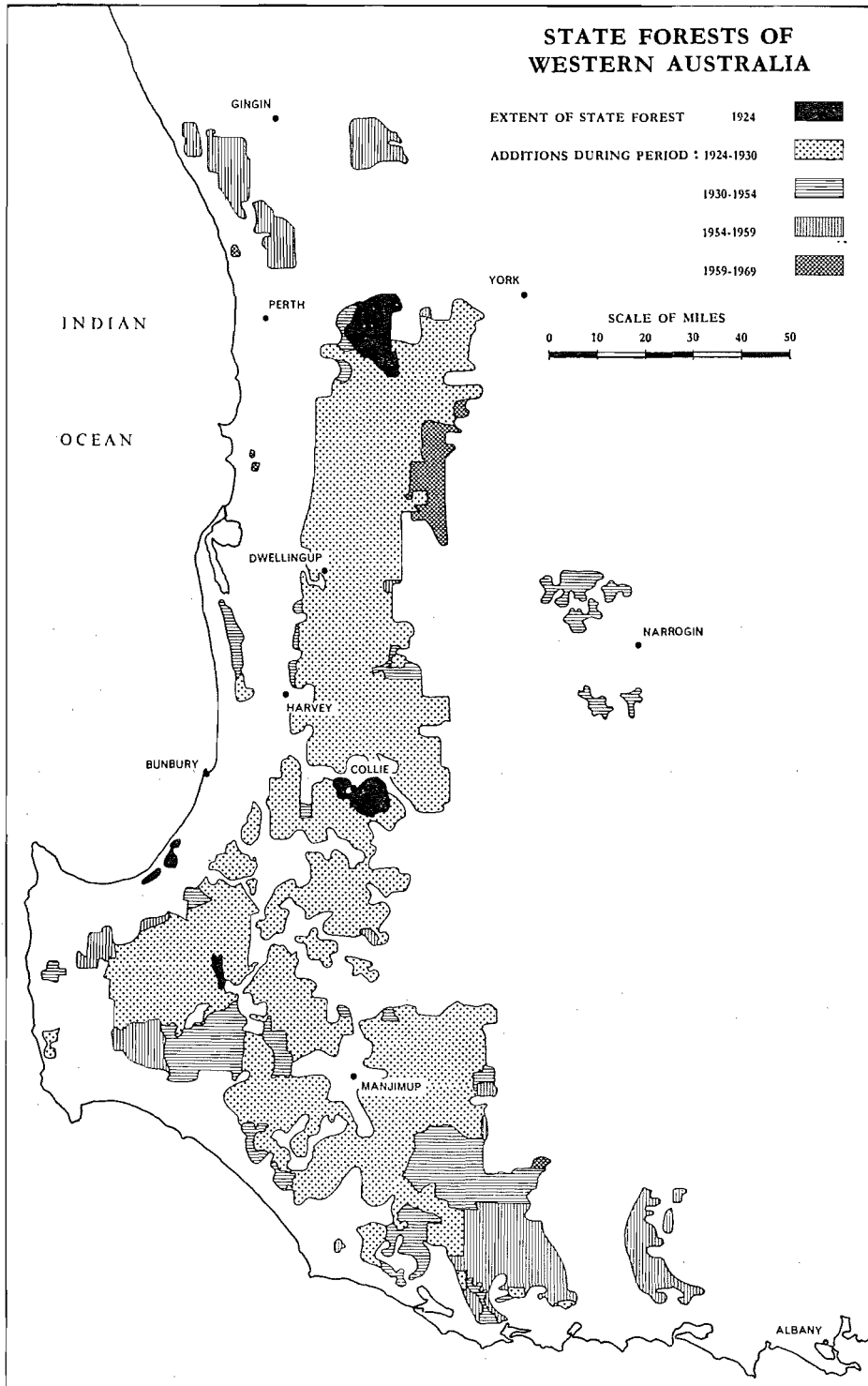
### FORESTRY

#### The Prime Indigenous Forests

Although the prime indigenous forests of Western Australia cover only a small percentage of the area of the State, they are of considerable economic importance. This is not only on account of the durability, strength and general-purpose nature of their hardwood timbers, but also because of their occurrence on the water catchment areas in the high-rainfall and closely-populated section of the State. Being easy to regenerate after cutting, they form a natural and effective protection against soil erosion, and provide for the increasing public demand for forest recreation. Nearly 4.5 million acres have been permanently dedicated as State Forests and approximately 2.5 million acres have been established as Timber Reserves under the Forests Act and the Land Act.

Jarrah (*Eucalyptus marginata*) is the State's principal timber and the prime forest covers over 3 million acres of the State Forests. Karri (*E. diversicolor*) is next in importance and is distributed over some 800,000 acres but only about 20 per cent of it is in pure stands. Wandoo (*E. redunca* var. *elata*) accounts for a smaller portion of the dedicated area and Tuart (*E. gomphocephala*), another valuable timber, has a restricted area of about 6,000 acres. Blackbutt (*E. patens*) occurs in patches throughout the jarrah and karri forests and is an important milling timber with properties and uses similar to jarrah. Marri (*E. calophylla*), the most widespread of the commercial eucalypts, is noted as a pole timber and is now being sawn in increasing quantities for building scantling. Of greatest importance, however, is the potential of marri as a resource for a wood chip or wood pulp industry.

Other eucalypts and many trees of different genera occur within the prime forest belt but they are not of major economic importance. The main distribution of the prime forests, which are practically confined to the south-western portion of the State, is shown on the accompanying map.



### The Inland Forests

Beyond the area of prime forest is an inland forest of sclerophyllous woodland, within which are a number of eucalypts (both tree and mallee form), as well as several types of *Acacia*, such as the wattles and mulgas, tea tree (*Melaleuca spp.*) and casuarinas. Sandalwood (*Santalum spicatum*), indigenous to the wheat belt and semi-arid areas of the State, is still exported to Asian countries but is now obtained only from the semi-arid regions.

While none of the inland forest can be classed as suitable for sawmilling in the ordinary sense, it forms an important source of timber for mining and agricultural purposes. During recent years, soil conservation in the regions of low rainfall has received increasing attention and the importance of controlling clearing, grazing and firewood cutting has been recognised. The Forests Department maintains a staff to exercise these controls and to advise on tree planting.

### Forestry Administration

Scientific forestry was given considerable impetus in Western Australia with the passing of the Forests Act in 1918. Extensive cutting over the previous fifty years had seriously depleted the State's timber resources and adequate provision had not been made for protection and regeneration. Under the Act, however, wide powers are conferred on the Forests Department, which is granted nine-tenths of the net annual government revenue from forestry sources. The sum received, together with various other grants, is used for regeneration, fire control and associated purposes.

The forests are now managed on a long-range working plan to ensure continuity of the industry, trees being approved for cutting and marked accordingly by trained foresters, who work under the direction of the Conservator of Forests and closely control both the indigenous forest and the mallee and pine plantations. The future productivity of the forests is also safeguarded by ensuring that cutting is carried out in such a way as to protect immature growth and to encourage natural regeneration, which is a very important feature of the Department's policy.

Brown Mallee (*Eucalyptus astringens*), the bark of which has a high tannin content, once covered large areas in the wandoor forest belt (see map on page 377) but was practically exterminated by clearing for farms and by excessive exploitation. Regenerated areas and plantations of mallee now total 19,111 acres and it is unlikely that this total area will increase.

Plantation methods are being employed to grow pines, principally *Pinus pinaster* and *Pinus radiata*, as the State has no indigenous softwoods of commercial significance. Financial assistance granted by the Commonwealth in terms of the *Softwood Forestry Agreements Act* 1967 will enable the State to plant 6,000 acres per annum for the five years to 1972. Thirteen plantations, with a planted area of 68,118 acres at 31 March 1970, have been established and it is planned to provide, ultimately, 240,000 acres of pine forest. Most of the land selected for pine planting is of limited value for agriculture but when used for pines it constitutes a valuable long-term investment, with the prospective development of industries for the manufacture of paper, wallboard and similar products.

Because of the hot, dry summers experienced in most of the areas covered by State Forests, there is a considerable risk of damage by fire and intensive precautions are taken by the Department to minimise this danger. Look-out towers, provided with radio or telephone communication, are manned at strategic points and controlled burning of approximately 900,000 acres per year is carried out during spring and, to a lesser extent, in autumn. Trials of prescribed burning by dropping incendiaries from a low-flying aircraft have proved successful and, during 1969-70, nearly 630,000 acres were burnt in this way. Restrictions are placed on all burning operations by farmers and other persons when the fire hazard is high and at such times warnings are issued emphasising the danger.

In association with the system of cutting control, various royalties, licence and permit fees are collected as part of the Consolidated Revenue of the State.



#### DIAMOND TREE FIRE LOOK-OUT

Diamond Tree, with its 20-foot wooden tower perched 160 feet above the ground in the branches of this karri tree is one of the forty look-out towers in the Forests Department's Fire Protection Branch. First manned in 1942, the look-out is situated only a few chains off the South-West Highway about six miles south of Manjimup.





#### CONTROLLED BURNING FOR FOREST CONSERVATION

A considerable risk of fire exists in State Forests, particularly in summer, and intensive precautions are taken by the Forests Department to minimise this danger. These include a rotational controlled burning programme which is aimed at covering the whole of the forest area of four and a half million acres once every five years, to reduce the amount of forest litter, so that bushfires may be more readily controlled. During 1969-70 nearly 630,000 acres were covered by the now routine technique of aerial controlled burning in which incendiaries are dropped from a low-flying aircraft.

*Block by courtesy of The Swan Brewery Company Limited*

### Principal Forest Products

Sawn timber from jarrah and karri is the principal form of forest production, but there has been a rapid increase in the local use of logs for plywood manufacture during recent years. Karri and, to a lesser extent, locally-grown pine logs are used for this purpose, together with imported logs. Particle board, manufactured from small-size thinnings from coastal plantations of *Pinus pinaster*, is becoming an increasingly important product. In 1968-69, according to the records of the Forests Department, the volume of chipwood logs used was 872,664 cubic feet, an increase of 50 per cent on the previous year.

In addition to these major products, the State's forest wealth includes wandoo (the whole tree) and mallet bark for tannin extract, sandalwood for export and as a source of sandalwood oil, firewood for general purposes, and various seeds and plants for propagation both in Australia and abroad. Wandoo and jarrah are used as a source of charcoal for the high-grade charcoal pig-iron produced at Wundowie. The karri, wandoo, marri and some inland species are important nectar producers for apiarists, who move their bees to various forest sites in following the nectar flow.

The following table gives details of sawn and round timber production from 1964-65 to 1968-69. Production of sawn timber has fluctuated over the ten years to 1968-69, reaching a maximum of 211·7 million superficial feet in 1967-68, with a minimum of 185·8 million superficial feet in 1962-63. In the same period the output of round timber, which consists mainly of mining timber, piles, poles, fencing posts and rails, ranged between a maximum of 37·9 million superficial feet in 1968-69 and a minimum in 1962-63 of 20·0 million superficial feet.

TIMBER PRODUCTION (a)

Particulars				1964-65	1965-66	1966-67	1967-68	1968-69
Timber—Sawn	....	....	'000 sup. feet	207,304	211,638	204,505	211,726	(b)188,294
Timber—Round	....	....	'000 sup. feet	25,950	22,109	21,229	24,448	37,899

(a) From local logs and includes railway sleepers and plywood veneers.

(b) Preliminary.

Sawmilling is dealt with in greater detail under *Secondary Industry* in Part 2 of this Chapter.

In 1968-69 exports of railway sleepers totalled 10·1 million superficial feet, of which 7·2 million went to other Australian States and 2·9 million to overseas markets, principally Jordan, Kenya, South Africa and the United Kingdom. In the same year 17·8 million superficial feet of other timber were exported to other Australian States and 9·4 million were shipped overseas, the principal markets being the United Kingdom, Kenya, New Zealand and South Africa.

### FISHERIES (INCLUDING WHALING AND PEARLING)

The fishing industry in Western Australia consists of three distinct activities, the catching of edible species, whaling and pearl-shell production. In addition, pearl culture has been successfully established in recent years.

#### General Fisheries

Since the end of the second World War, rock lobsters have become the most important item of production of that section of the industry which is concerned with the catching of edible species. Prior to the war there was a small local market for fresh rock lobsters, but in 1941 production was stimulated by canning for the armed forces. Although canning continued until 1950, it had become far less important by 1947 than another development, the freezing of rock lobster tails for export, mainly to the United States of



America. The overseas demand, which developed rapidly in post-war years, gave great impetus to the industry and the take increased greatly after 1947 to a record production of 22·0 million lb in 1967-68 valued at \$16·9 million. Although the catch for 1968-69 decreased to 18·0 million lb, the value of \$17·8 million was the highest ever recorded. Overseas and interstate exports of rock lobster tails in 1968-69 totalled 6·7 million lb with an f.o.b. value of \$17·1 million.

The most important commercial species of rock lobsters in Western Australian waters is *Panulirus cygnus*, which occurs off the south-west coast between Murchison River and Bunbury. The principal localities around which rock lobsters are caught are the Abrolhos Islands, Geraldton, Dongara, Beagle Island, Green Head, Jurien Bay, Cervantes, Lancelin, Ledge Point and Fremantle. The industry is protected from overfishing by such measures as the declaration of closed seasons; the proclamation of fishing zones; the prohibition of the taking of lobsters of less than a prescribed size or of female rock lobsters having berry (i.e. eggs) attached; requiring that every rock lobster pot shall have an escape gap of specified dimensions; the granting only in special circumstances of new licences for boats for rock lobster-fishing; and limiting the number of pots that a boat may carry or use at any one time. The catch is processed either on specially equipped freezer boats or at shore stations licensed under the *Fisheries Act, 1905-1969* as processing establishments.

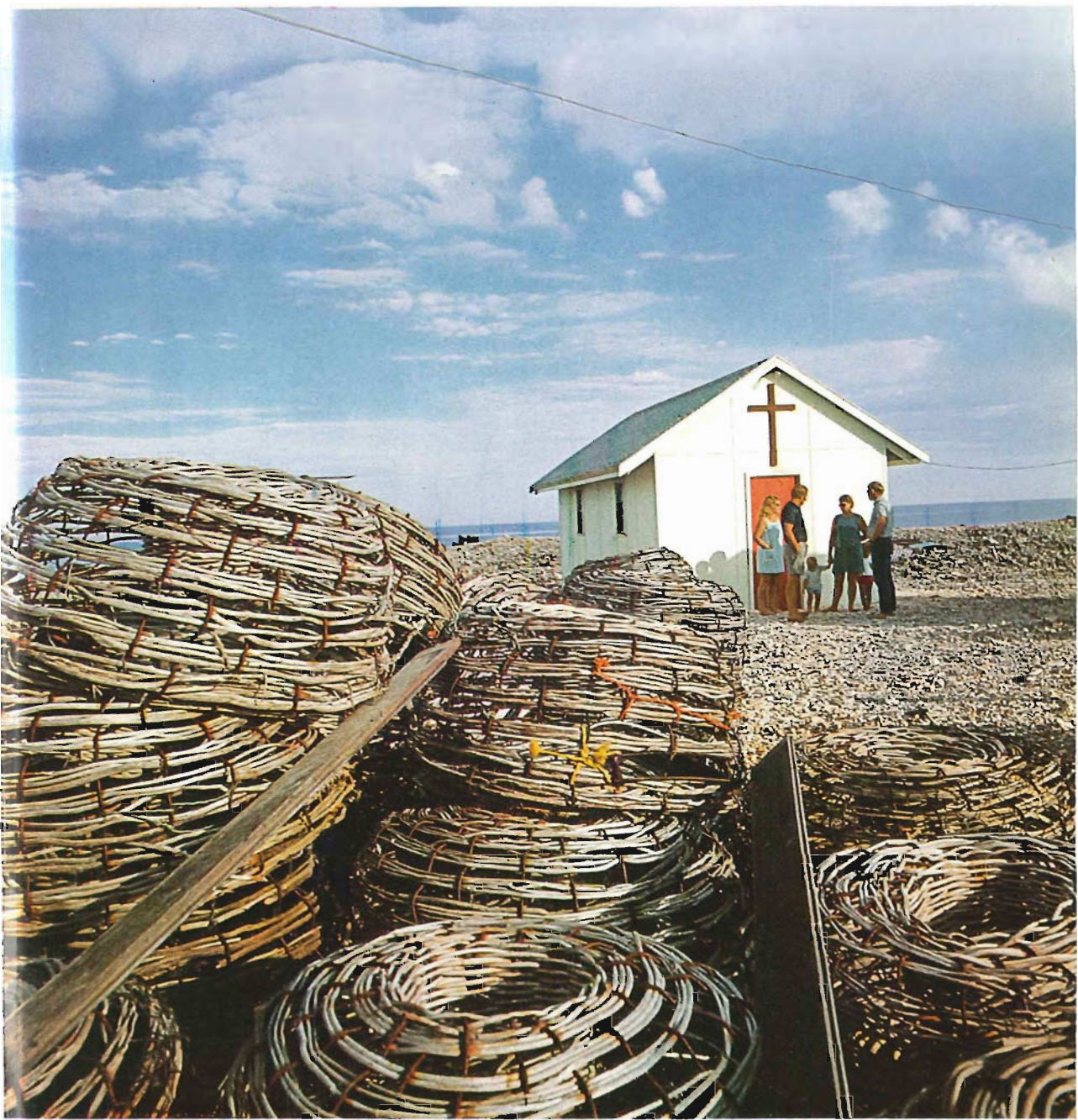
In Western Australia, rock lobsters were known as 'crayfish' until the name was amended in State legislation by the *Fisheries Act Amendment Act (No. 2), 1969*. This change of name was subsequently accepted by the Commonwealth Department of Primary Industry who have amended the *Nomenclature of Australian Commercial Marine Fauna and Flora* accordingly.

The large catches of Australian salmon (*Arripis trutta*), which school in the bays on the south and lower south-western coasts, yield a large proportion of the production of inshore and beach fishing and are used almost exclusively for canning. The remainder of the catch from this type of fishing comprises chiefly tailor (*Pomatomus saltator*), sea herring or ruff (*Arripis georgianus*), Western sand whiting (*Sillago schomburgki*), sea mullet (*Mugil cephalus*) and trevally or skipjack (*Usacaranx georgianus*). This is sold mainly as wet fish on the local market, but large quantities of sea herring are canned and there are some exports, principally of whiting, to the other Australian States.

The coastal waters northward from the mouth of the Murchison River to North West Cape and Exmouth Gulf are the source of several species of commercial importance. Snapper (*Chrysophrys auratus*) are caught between the Murchison River and North West Cape, during the northern schooling season from May to August. Cod and Spanish mackerel, though in smaller quantities, are also caught between the Murchison River and North West Cape. At Shark Bay a prawn-fishing industry has been successfully established in recent years, the catch being processed at Carnarvon. The species caught are the Western king prawn (*Penaeus latisulcatus*) and the tiger prawn (*P. esculentus*). A prawn fishery has also been established at Exmouth Gulf, the principal species caught in 1968-69 being the tiger prawn and the Western king prawn. Quantities of endeavour prawn (*Metapanaeus endeavouri*) and banana prawn (*P. merguensis*) were also caught. The catch is processed at Learmonth and on freezer boats. As a conservation measure the number of fishing boats licensed to operate has been limited to thirty at Shark Bay and twenty at Exmouth Gulf. From a catch of 238,937 lb in 1961-62, the production of prawns has increased significantly and in 1968-69 was 3,822,630 lb. Production is expected to increase still further due to the establishment of commercial prawn fishing in the Nickol Bay area, near Roebourne, and because of promising experimental trawling being carried out in other areas along the north and north-west coast.

The first fishing grounds to be exploited were the estuaries and rivers and, although they are not now as important as other grounds, they still provide substantial quantities of fish of a fairly wide variety. The principal species are cobbler (*Chidoglanis macro-*





*Block by courtesy of 'Australian Fisheries'*

#### ABROLHOS CHURCH

Pictured is the tiny church on Vasile Island in the Abrolhos Group which lie some fifty miles off the Western Australian coast from the port of Geraldton. The church was built by rock lobster fishermen who live here with their families during the season from March to August each year.

The Abrolhos, a contraction of the Portuguese name given by the Dutch explorer Houtman in 1619, are a relatively small cluster of islands with only about fifty miles separating their northern and southern limits. They are encircled by coral reefs which contain some of the most productive spiny rock lobster grounds in Australia.





#### SALMON FISHING ON THE SOUTH COAST

For about six weeks between March and April each year, large schools of salmon make their way around the south-west coast from the Southern Ocean to the Indian Ocean. Many professional fishermen, such as the one pictured with his catch about thirty miles east of Albany, keep a close watch for the salmon, particularly in bays of the south coast. When the schools are sighted the fishermen take their nets to sea and may catch a whole school. The catch of salmon has declined from a peak in recent years of 10.5 million lb in 1967-68 to 4.7 million lb in 1969-70.

*Block by courtesy of The Swan Brewery Company Limited*

*cephalus*) and yellow-eye mullet (*Aldrichetta forsteri*), most of which are caught in Leschenault and Peel Inlets and the Harvey and Swan estuaries. Other species include garfish (*Hemirhamphus australis*), Perth herring (*Fluvialosa vlaminghi*), sea mullet, tailor, sand whiting, King George whiting (*Sillaginodes punctatus*), and flathead. Crabs (*Portunus pelagicus*), green-tail prawns (*Metapenaeus bennettiae*) and Western king prawns are also caught commercially in these waters.

There are no indigenous inland or freshwater fish of commercial value. A relatively large crustacean, the marron (*Cherax tenuimanus*), occurs in the streams of the lower South-West and some success has been achieved in stocking farm dams with this species. Brown trout, rainbow trout and English perch have been introduced into the streams of the southern districts.

Research work on rock lobsters, Australian salmon, prawns, tuna, whiting, abalone, scallops and whales in Western Australian marine waters is being carried out by the Western Australian Department of Fisheries and Fauna in association with the Commonwealth Scientific and Industrial Research Organization and other State and Commonwealth authorities. A marine research centre has been built at Waterman, about fourteen miles north of Fremantle, for the Department of Fisheries and Fauna. It incorporates eleven separate laboratories and a large aquarium, with circulating water, for experiments and studies of fish behaviour. Fisheries research workers from the Department of Fisheries and Fauna, the Commonwealth Scientific and Industrial Research Organization and the University of Western Australia are employed at the centre.

The principal species of edible fish are shown in the following table with the quantities of each species caught in the years 1964-65 to 1968-69.

#### PRODUCTION OF FISH AND CRUSTACEANS (a)

Species—Common name	1964-65	1965-66	1966-67	1967-68	1968-69
<b>Crustaceans (b)—</b>	<b>lb</b>	<b>lb</b>	<b>lb</b>	<b>lb</b>	<b>lb</b>
Crabs .....	27,992	34,526	95,995	68,487	61,043
Prawns .....	1,829,490	2,484,785	3,897,552	3,862,298	3,822,630
Rock lobsters .....	16,378,120	17,794,139	18,942,513	22,024,111	18,030,215
<b>Total .....</b>	<b>18,235,602</b>	<b>20,313,450</b>	<b>22,936,060</b>	<b>25,954,896</b>	<b>21,913,888</b>
<b>Fish (c)—</b>					
Bream, Black .....	37,733	32,608	28,941	32,646	22,657
Bream, Buffalo .....	29,361	16,647	17,379	27,918	25,564
Bream, Western Yellowfin .....	49,829	25,302	42,848	34,720	22,405
Cobbler .....	255,461	206,306	196,793	154,703	157,969
Cod .....	49,283	57,049	35,846	34,791	38,084
Flathead .....	17,446	19,723	18,844	17,821	17,491
Garfish, Sea .....	51,780	62,612	51,035	39,447	36,638
Groper .....	27,445	31,714	28,781	28,809	21,087
Herring, Perth .....	311,204	483,557	469,810	424,082	492,264
Jewfish, Westralian .....	283,467	273,679	282,473	229,704	226,069
Mackerel, Scaly .....	257,103	373,729	80,968	88,650	104,108
Mackerel, Spanish .....	229,641	226,372	119,729	200,054	164,731
Mullet, Sea .....	984,206	1,216,315	991,808	654,290	688,694
Mullet, Yellow-eye .....	431,508	772,999	768,178	729,596	576,804
Mulloway (River Kingfish) .....	39,471	46,448	18,222	25,577	26,353
Pilchard .....	20,689	336,794	260,963	437,594	241,067
Ruff (Sea Herring) .....	880,922	939,261	710,400	744,615	1,362,817
Salmon, Australian .....	3,401,307	6,508,108	9,244,594	10,501,627	5,576,285
Samson Fish (Sea Kingfish) .....	62,821	118,464	115,823	78,464	100,842
Shark .....	802,478	969,574	832,765	710,205	763,090
Snapper .....	1,083,244	548,589	572,456	559,334	313,351
Tailor .....	191,768	196,210	134,565	79,440	80,090
Tarwhine .....	4,325	10,439	2,583	5,475	6,936
Trevally, Silver (Skipjack) .....	104,475	106,466	63,990	48,268	45,910
Tuna .....	32,902	47,465	106,328	144,183	713,721
Whiting, King George .....	37,314	45,361	43,259	57,675	73,408
Whiting, Western Sand .....	413,993	399,964	468,748	458,194	309,366
Other species .....	269,793	271,067	241,257	198,647	213,813
<b>Total .....</b>	<b>10,360,969</b>	<b>14,342,822</b>	<b>15,949,386</b>	<b>16,746,529</b>	<b>12,424,614</b>

(a) Excludes turtles and edible molluscs.

(b) Gross weight.

(c) Estimated live weight.

A summary of the principal statistics of the fishing industry is given in the following table.

## GENERAL FISHERIES

At 31 December—	Boats licensed	Value of boats and equipment	Fishermen licensed (a)	Year	Production			
					Rock lobsters		Other fish (b)	
					Quantity (c)	Value	Quantity (d)	Value
	number	\$	number		'000 lb	\$	'000 lb	\$
1964 ....	1,438	9,246,590	2,299	1964-65 ....	16,378	11,191,714	10,361	1,299,552
1965 ....	1,458	8,795,976	2,346	1965-66 ....	17,794	11,388,247	14,343	1,256,267
1966 ....	1,475	9,707,380	2,350	1966-67 ....	18,943	11,344,143	15,949	1,013,173
1967 ....	1,487	11,413,000	2,724	1967-68 ....	22,024	16,862,727	16,747	1,099,506
1968 ....	1,412	14,602,953	2,785	1968-69 ....	18,030	17,801,231	12,425	922,102

(a) Comprises employees and working proprietors.  
weight of whole rock lobsters.

(b) Excludes crustaceans, edible molluscs and turtles.  
(d) Estimated live weight.

(c) Live

## Whaling

Whaling has been conducted along the Western Australian coast from the first years of settlement and whale oil and whale bone were among the earliest exports from the Colony. Activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949, when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. A treatment plant was established by the Australian Whaling Commission at Babbage Island, near Carnarvon, in 1951 and a plant at Frenchman Bay near Albany was enlarged in the following year. In 1956, the company operating from Point Cloates purchased the Australian Whaling Commission's station at Babbage Island and transferred its activities to that base.

During the 1963 season the two whaling companies operating in Western Australia took only eighty-seven humpback whales, compared with a quota of 550 allocated under the procedure laid down by the International Whaling Commission. At a meeting held in London in July 1963 the Commission decided that more stringent measures should be adopted to prevent further depletion of numbers. Accordingly it imposed a total ban on the taking of humpback whales for an indefinite period in all waters of the Southern Hemisphere. The company operating from Carnarvon, which relied mainly on the taking of humpbacks, ceased whaling activities at its Carnarvon base in August 1963.

Before the 1962 season the whales taken were predominantly humpbacks. The only station now operating is at Frenchman Bay where sperm whaling has been carried on since 1955.

The figures in the following table have been derived from information provided by the Fisheries Branch of the Commonwealth Department of Primary Industry.

## WHALING

Particulars	1965	1966	1967	1968	1969
Sperm whales taken ....	668	606	587	658	679
Oil produced (a) ....	4,379	4,042	3,738	3,912	4,487

(a) 1 ton = 6 barrels (approximately).

## Pearl-shell Fishing and Pearl Culture

Pearl and pearl-shell fishing has been a valuable industry for many years, the main centre being Broome. The pearls obtained were once an important feature of production but the success of the industry now depends almost entirely on the shell produced and the price obtainable for it. Activities were suspended following the outbreak of war with Japan, when valuable luggers and equipment were lost. After the war recovery of the industry was slow because of a shortage of suitable boats and the difficulty in obtaining experienced divers. In 1953 the rate of progress improved when the services of trained Japanese divers again became available. By 1957 production of shell had reached the



pre-war level of about 1,000 tons but due to the depressed state of the market it fell to 753 tons in 1958. Except for a slight recovery in 1960, production declined in each year from 1959 until 1964, when 138 tons of shell were raised. Due to the increased demand for shell for pearl culture, production then increased slightly and in 1969 was 246 tons.

In 1956 a licence was granted to a company to culture pearls at Kuri Bay in Brecknock Harbour, 130 miles north-east of Derby and the initial harvest of pearls was gathered in 1957. Licences have since been issued to two other companies and pearl culture farms have been established in Samson Inlet, Hiro Bay and Mura Bay and in King Sound and at Exmouth Gulf near Giralia Landing. Pearls were harvested at Exmouth Gulf for the first time in 1965. During 1966 approximately 50,000 live shells were shipped from Western Australia to Papua, where they were used to establish the pearl culture industry at Fairfax Harbour. A further 40,000 live shells were shipped in 1967. Figures in the following table do not include details of culture pearl production.

**PEARL AND PEARL-SHELL FISHERIES**  
(*Excluding Pearl Culture*)

Particulars	Year ended 31 December—				
	1965	1966	1967	1968	1969
<b>VESSLS OPERATING</b>					
Number ....	11	13	14	13	12
Aggregate tonnage ....	252	301	332	319	296
Value (including equipment) .... \$	96,600	106,000	123,500	124,000	174,000
<b>NUMBER OF PERSONS ENGAGED</b>					
European ....	5	7	9	5	6
Australian Aboriginal ....	25	17	8	11	10
Asian—					
Chinese ....	2	2	1	...	...
Japanese ....	28	34	37	35	28
Koepanger ....	2	2	1	...	...
Malay ....	44	60	76	68	63
Other ....	1	1	...	...	...
Total ....	77	99	115	103	91
Total persons engaged ....	107	123	132	119	107
<b>PEARL-SHELL AND PEARLS PRODUCED</b>					
Pearl-shell— Quantity .... tons	160	185	221	212	246
Value .... \$	258,394	*290,448	354,845	333,008	370,561
Value of pearls .... \$	980	1,329	4,200	1,050	336

\*Revised.

## MINING AND QUARRYING

Mineral statistics presented in the following pages are derived principally from the annual census of mining and quarrying conducted by the Bureau of Census and Statistics. Data from the census are supplemented where necessary by publishable information made available by the Western Australian Department of Mines. In respect of the year 1968-69, the Commonwealth Bureau of Census and Statistics conducted the annual census of mining as part of a programme of fully integrated economic censuses covering mining and manufacturing industries, and wholesale and retail trade. This has been a major undertaking involving the development of new concepts, definitions and procedures, and processing of the statistics has taken considerably longer than usual. Further details relating to the 1968-69 integrated economic censuses and of the new concepts and methods adopted appear in the *Appendix* together with a summary of the preliminary results of the censuses.

The mining industry has been for many years of considerable significance in the Western Australian economy and it has recently increased in importance due to the exploitation of iron ore, nickel, oil and other minerals. The mineral resources of the State are extremely varied in character and are widely distributed geographically. Extensive exploratory work is being undertaken to evaluate the known deposits and also to locate other reserves of minerals. The geology of the State is described in Chapter II Part 1—*Physical Features and Geology*, and reference is made there to the occurrence of mineral deposits.

The following table gives details of mine and quarry production during the calendar years 1966 to 1968.

## MINE AND QUARRY PRODUCTION

Item	1966		1967		1968	
	Quantity	Value	Quantity	Value	Quantity	Value
Gold (a) ....	fine oz	\$	fine oz	\$	fine oz	\$
Silver (b) ....	627,052	23,242,512	573,755	21,618,215	515,950	19,539,407
Asbestos—	226,912	266,232	218,442	297,086	183,553	374,800
Crocidolite ....	tons		tons		tons	
Chrysotile ....	11,465	2,414,905	76	3,215	67	2,814
Barytes ....	119	19,326	962	21,613	656	9,968
Bauxite ....	1,810	26,660	(c)	1,607,988	(c)	5,668
Beryl ....	807,105	11	1,353,980	3,682	1,073,272	977,099
Clays—all kinds (d) ....	13	2,992	613,981	537,864	1,087,379	4,816,725
Coal ....	577,217	536,039	1,062,151	4,764,502	(e) 4,276	(e) 908,221
Copper concentrates ....	1,061,095	4,562,087	(e) 3,093	(e) 558,835	(e) 3,093	(e) 558,835
Crude oil ....	3,268	524,827	barrels	barrels	barrels	barrels
.....	.....	.....	4,819,000	(c) 10,776,534	(f) 31,036,418	
Cupreous ore (for fertiliser) ....	962	87,954	776	52,126	691	51,231
Felspar ....	1,282	18,050	342	5,112	469	7,035
Gypsum ....	41,884	79,873	40,078	303,193	103,929	643,669
Ilmenite concentrates ....	497,848	4,801,929	529,914	5,182,305	535,232	*5,357,184
Iron ore ....	6,106,105	33,771,718	12,160,702	84,358,259	18,827,593	131,939,262
Lead, silver-lead and silver-lead-zinc ore and concentrates ....	2,681	109,242	910	96,893	418	40,957
Leucosene concentrates ....	756	31,273	696	35,257	1,607	75,607
Limestone and shell (including road-making stone but excluding building stone) ....	1,362,919	1,430,519	1,276,391	851,904	1,336,260	1,065,400
Magnesite ....	135	1,959	1,258	12,224	166	2,412
Manganese ore ....	183,209	4,091,257	195,065	4,465,602	150,338	3,135,445
Monazite concentrates ....	1,346	162,778	1,570	207,370	1,256	152,007
Natural gas ....	.....	.....	'000 cubic ft	(c)	'000 cubic ft	(c)
Nickel concentrates ....	.....	.....	25,575	92,922	36,880	798
Ochre ....	207	4,140	15,753	(c) 36,880	(c) 36,880	(c) 36,880
Pyritic ore and concentrates ....	76,136	1,070,135	261	5,220	515	9,824
Rutile concentrates ....	576	40,515	78,685	1,113,400	32,879	420,825
Semi-precious stones—	.....	.....	400	28,757	845	66,773
Emeralds ....	.....	.....	.....	.....	carats	carats
Other ....	.....	.....	lb	lb	lb	lb
Stone, building and monumental—	.....	.....	62,872	8,042	33,174	9,773
Sandstone, limestone, granite, etc. ....	146,687	412,064	tons	tons	tons	tons
Stone, crushed and broken (g) ....	.....	.....	126,998	404,587	169,793	513,623
Granite, diorite, quartzite, basalt ....	2,157,330	6,373,342	2,480,117	6,759,617	3,056,309	8,193,769
Talc ....	9,155	231,625	7,901	227,037	(c) 1,256	(c) 1,256
Tantalite concentrates (including tantalite-columbite) ....	10,550	19,691	78,400	172,211	237,440	340,113
Tin ore and concentrates ....	973	2,072,176	1,074	2,197,648	895	1,658,241
Xenotime ....	.....	.....	18	45,000	*18	*45,000
Zircon concentrates ....	25,159	899,263	32,166	1,193,369	28,096	889,277
Other (value only) (h) ....	.....	2,207,191	.....	22,015,116	.....	11,529,660
Total value ....	.....	89,512,274	.....	157,545,261	.....	*223,819,005

(a) Values are in terms of Australian currency and include amounts realised by the Gold Producers' Association Ltd. on sales of Western Australian gold—in 1966, \$116,014; in 1967, \$70,569; in 1968, \$794,964. They also include Commonwealth net subsidy paid to gold producers—in 1966, \$3,550,489; in 1967, \$3,617,813; in 1968, \$2,621,004. (b) By-product from treatment of auriferous ore and excludes silver contained in silver-lead and copper ores and concentrates exported, for which see table on page 387. (c) Not available for publication. (d) Includes production of bentonite. (e) Excludes copper concentrates from nickel mining which commenced production in June 1967. (f) Value based on price per barrel published by Ampol Petroleum Limited. (g) Excludes limestone. (h) Includes production of nickel, bauxite and salt. \* Revised.





#### NEWMAN IN THE PILBARA

This aerial photograph shows the rapidly expanding town of Newman which has increased its population from about 1,490 in February 1970 to over 2,400 at the beginning of 1971. The population is expected to reach 5,000 by 1973 when production of iron ore from this site is planned to reach its peak. In the background, some four miles distant, is the open-cut mine on Mount Whaleback.

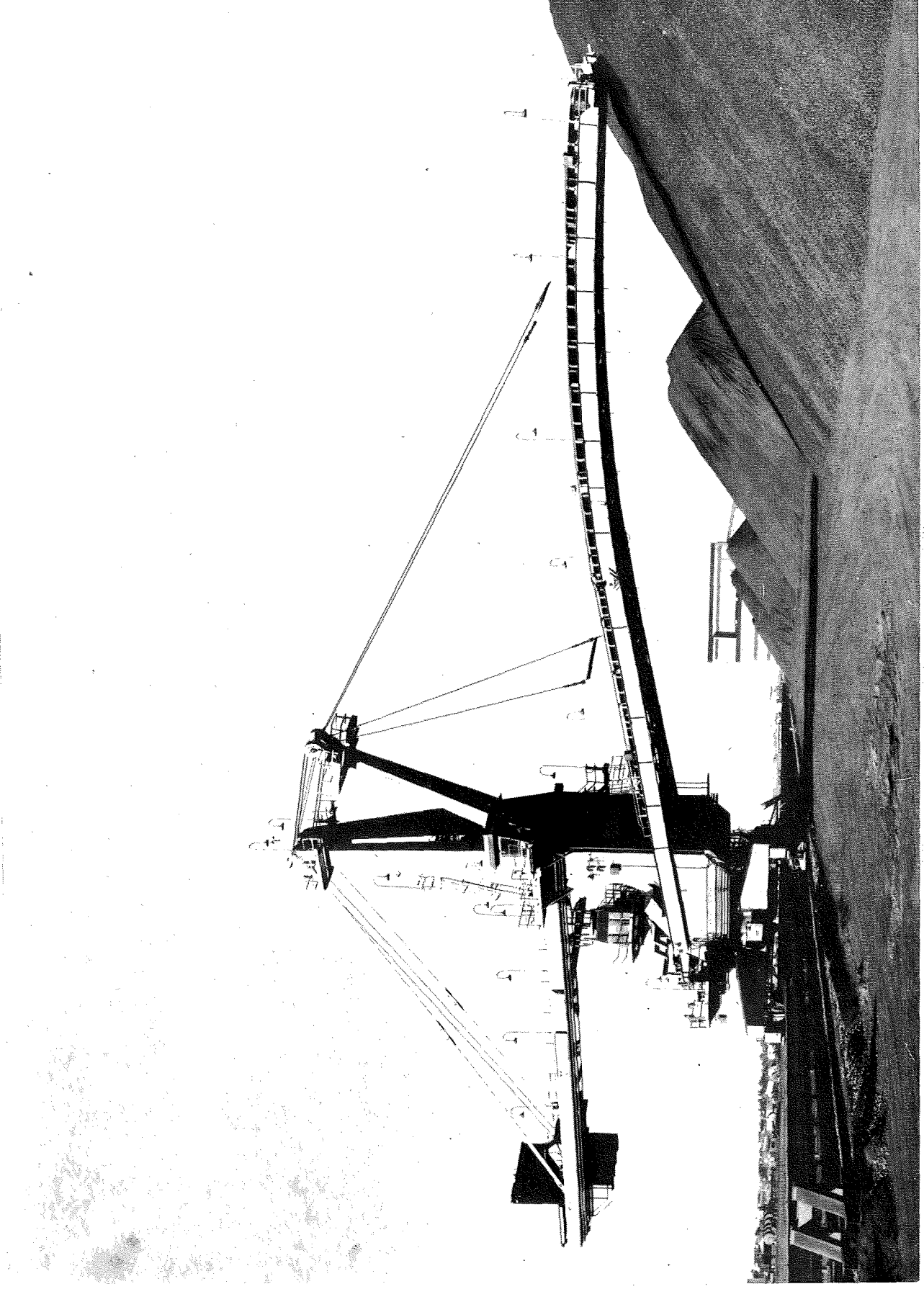
*Photograph by courtesy of Mt. Newman Mining Co. Pty. Limited*



#### MT NEWMAN MINESITE

Pictured is the Mt Newman Mining Company's open-cut mine on Mount Whaleback in the Ophthalmia Range in the Pilbara region. Towards the centre of the picture may be seen the crushing plant where the ore is crushed before loading into rail cars. Company geologists have proven reserves of 610 million tons of high grade ore and inferred potential of a further 1,000 million tons at Mount Whaleback.

*Photograph by courtesy of Mt. Newman Mining Co. Pty. Limited*



### IRON-ORE STACKER

This giant machine at Port Hedland is stacking iron ore prior to shipment to Japan. The ore is transported by rail from the deposits at Mount Whaleback in the Pilbara region, 265 miles to the south.

*Photograph by courtesy of Australian News and Information Bureau*

The development of mining as a major industry in Western Australia began with the discovery of gold in the Kimberley in 1885, although some forty years earlier coal had been found at the Irwin River and copper and lead in the Northampton district. The impetus given to prospecting by the Kimberley finds led to other gold strikes between 1887 and 1891 and the rich discoveries at Coolgardie in 1892 and at Kalgoorlie in 1893.

Developments in recent years have led to a great increase in the value of mineral production. Beach sands in the lower south-west of the State are being exploited for their ilmenite content and bauxite deposits in the Darling Range near Perth are being worked as a source of alumina which is exported interstate and overseas. Vast reserves of high-grade iron ore in the Pilbara and elsewhere are being mined, the first commercial shipments to overseas destinations commencing in 1966. Commercial deposits of crude oil at Barrow Island and of nickel ore at Kambalda, Scotia and Nepean are also being mined and are contributing to the value of mineral production.

During the war years employment in mining and quarrying decreased considerably and, although there was some recovery after 1945, the number of men engaged in 1968 was only 8,223 compared with 16,530 in 1939. This decline in employment occurred mainly in the gold-mining industry and further comment on it appears in the section *Gold* below. Mining for iron ore and nickel was largely responsible for the significant increase in the number employed from 1967.

MEN WORKING AT MINES AND QUARRIES (a)

Description	1964	1965	1966	1967	1968
Gold mining (b) ....	4,383	4,094	4,053	4,027	3,567
Coal mining ....	765	760	726	694	649
Other mining and quarrying ....	2,255	2,307	2,747	3,525	4,007
Total ....	7,403	7,161	7,526	8,246	8,223

(a) Average over the whole year.

(b) Includes alluvial diggers.

The mining laws of the State have been designed to encourage as well as to control activity in the industry. This policy and the experience of other countries were given due consideration in framing them and they are regarded as equitable and offering all reasonable incentives to mining development. The various tenures are described in detail in Chapter VII, Part 1 of the *Western Australian Year Book*, No. 8—1969.

## Gold

Although specimens of gold had been found in earlier years at several places in the Colony, it was first discovered in payable quantities in the Kimberley in 1885. This find led to widespread prospecting activity, resulting in further gold strikes between 1887 and 1891 in the Yilgarn, Pilbara, Ashburton and Murchison districts. These were followed by spectacular discoveries in 1892 at Coolgardie and in 1893 at Kalgoorlie where the famous Golden Mile was developed. The Golden Mile is still the principal source of gold in the State and accounts for about one-half of Australia's total production. By 1900 all the present proclaimed goldfields, ranging from Kimberley in the north to Phillips River in the south, had been opened up.

Production reached a maximum of 2,064,800 fine ounces in 1903 but there followed a gradual and continuous decline, due mainly to exhaustion of surface deposits, until in 1929 the yield was only 377,176 fine ounces. In succeeding years various economic factors stimulated activity in the industry and there was a well-maintained improvement until 1939 when production reached 1,214,238 fine ounces. The second World War brought about a decline which was accelerated by the introduction early in 1942 of a rigid system of manpower control. The average annual production as reported by gold mines for the five-year period 1964-1968 was 617,719 fine ounces.

The production of each goldfield, as reported to the Department of Mines, for each year from 1964 to 1968 is shown in the following table. Gold produced in the period 1886 to 31 December 1968 amounted to 65,723,074 fine ounces.

**MINE PRODUCTION OF GOLD (a) CLASSIFIED ACCORDING TO GOLDFIELD**  
(Fine ounces)

Goldfield	1964	1965	1966	1967	1968
Kimberley	15	11	18	7	....
Pilbara	968	508	917	1,351	1,369
West Pilbara	....	....	....	....	....
Ashburton	1	....	....	....	....
Gascoyne	311	260	350	714	741
Peak Hill	18	101	6	10	10
East Murchison	847	1,243	1,044	1,138	391
Murchison	71,414	55,477	42,472	41,632	32,951
Yalgoo	....	....	7	135	221
Mount Margaret	909	257	715	1,183	1,282
North Coolgardie	17,858	13,880	10,336	3,121	417
Broad Arrow	3,027	3,056	2,274	903	901
North-East Coolgardie	173	335	487	450	465
East Coolgardie (b)	509,984	477,900	461,264	432,145	389,572
Coolgardie	4,007	4,628	5,636	1,811	1,199
Yilgarn	2,784	2,238	1,020	1,360	1,118
Dundas	100,864	95,393	99,063	86,523	84,095
Phillips River (c)	2,210	1,064	1,389	1,199	1,218
Outside proclaimed goldfields (d)	89	4	53	73	....
<b>Total</b>	<b>715,481</b>	<b>656,355</b>	<b>627,052</b>	<b>573,755</b>	<b>515,950</b>

(a) As reported to the Department of Mines.

(b) Includes Golden Mile, Kalgoorlie; see letterpress preceding table.

(c) Production is mainly from copper concentrates.

(d) Includes South-West Mineral Field.

The figures given in the following table relate to refinery production and comprise gold refined at The Perth Mint and gold contained in gold-bearing materials exported. Particulars for individual years do not agree with those for mine production, quoted in earlier tables, because of the delay between production at the mine and refining at the Mint. Values include amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. The amounts shown as 'Commonwealth net subsidy' represent payments made to gold producers under the Gold-Mining Industry Assistance Act passed by the Commonwealth Parliament in 1954. The values exclude amounts, totalling \$488,644, paid by the Commonwealth under the *Gold Mines Development Assistance Act* 1962 in the form of a development allowance to approved producers not receiving the subsidy. This Act expired on 30 June 1965 and was not renewed, as the result of an amendment made in 1965 to the Gold-Mining Industry Assistance Act liberalising the conditions applying to subsidy payments and continuing the operation of the Act until 30 June 1970. An amendment in 1970 to the Gold-Mining Industry Assistance Act extends the Act for a further three years from 1 July 1970.

**REFINERY PRODUCTION OF GOLD**

Year	Quantity (a)			Value			
	Refined outside the State (b)	Refined at The Perth Mint	Total	Mint value	Payments by Gold Producers' Association Ltd.	Commonwealth net subsidy	Total
	fine oz	fine oz	fine oz	\$	\$	\$	\$
1964	3,071	709,776	712,847	22,276,468	23,418	1,083,374	23,383,260
1965	2,997	656,440	659,437	20,607,404	114,760	1,659,163	22,381,327
1966	1,462	627,315	628,777	19,649,273	116,014	3,550,489	23,315,776
1967	2,743	573,278	576,021	18,001,355	70,569	3,617,813	21,689,737
1968	919	510,784	511,703	15,990,759	794,964	2,621,004	19,406,727

(a) Figures do not in all cases add to the totals shown owing to rounding to the nearest fine ounce.

(b) Comprises gold in ores and concentrates exported.

## GOLD MINING—SUMMARY OF OPERATIONS (a)

Year	Leases in force at 31 December (b)		Gold-mining machinery in use at 31 December						Total value of gold-mining machinery	Ore treated	Employment at mines (c)		Alluvial diggers
	Leases	Area	Batteries		Other crushing mills	Cyaniding		Above ground			Under ground		
			Number	Head of stamps		Leaching and agitating vats	Vacuum filters and presses						
1964 ....	No. 953	acres 17,716	37	No. 237	No. 201	No. 155	No. 84	\$ 14,615,846	tons 2,645,956	(d) 2,111	(d) 2,243	No. 29	
1965 ....	960	18,032	32	215	213	133	61	14,535,960	2,530,165	1,982	2,091	21	
1966 ....	1,008	18,647	32	219	134	129	69	17,048,933	2,619,016	1,960	2,075	18	
1967 ....	1,030	19,278	26	184	162	119	57	15,212,708	2,531,624	2,022	1,988	17	
1968 ....	1,032	19,299	26	166	165	118	48	15,769,000	2,307,739	1,848	1,701	18	

(a) Includes Government Batteries. (b) Includes leases taken up on private property. (c) Average over whole year. Excludes workers on sick, accident, annual and long service leave.

Except for minor fluctuations, a general increase in the quantity of ore treated annually occurred between 1946 and 1960. Although there has been a decline since that year, the quantity treated in 1968, 2·31 million tons, was still greater than the amount of 2·19 million tons treated in 1946. The higher tonnage of ore treated annually in post-war years has been achieved with a decreasing work force by the introduction of new methods and improved tools and machinery, the number of men employed (including alluvial diggers) having declined from 6,961 in 1946 to 3,567 in 1968.

The Department of Mines operates batteries for the treatment of ore which is mined by prospectors or other small producers, and various concessions are made in order to encourage work which is exploratory or too limited in extent to warrant the installation of major plant. Figures for the State Batteries are included in the previous table.

## Silver

The greater portion of silver produced in Western Australia has been obtained as a by-product of gold mining. The other silver production is from silver-lead, silver-lead-zinc and copper ores and concentrates exported for treatment outside the State.

## PRODUCTION OF SILVER

Year	From treatment of auriferous ore		Silver content of silver-lead, silver-lead-zinc and of copper ores and concentrates exported	
	Quantity	Value	Quantity	Value
1964 ....	fine oz 224,573	\$ 263,282	fine oz 17,159	\$ 19,916
1965 ....	234,280	274,473	11,102	13,007
1966 ....	226,912	266,232	9,819	10,930
1967 ....	218,442	297,086	5,131	6,992
1968 ....	183,553	374,800	3,806	7,769

## Asbestos

Several types of asbestos occur in the State but only two, crocidolite and chrysotile, have been produced in significant quantities. The production of crocidolite (blue asbestos) from deposits at Wittenoom Gorge in the West Pilbara district ceased in 1966. Peak production of crocidolite occurred in 1962 when 15,617 tons were mined. Chrysotile, which occurs at a number of places in the Pilbara and West Pilbara districts, has been relatively less important than crocidolite. Small quantities of chrysotile were recovered from old ore dumps in the Pilbara during 1967 and 1968.



## PRODUCTION OF ASBESTOS

Year	Crocidolite		Chrysotile		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1964	10,614	2,124,200	536	87,362	11,150	2,211,562
1965	9,280	1,974,246	402	57,678	9,682	2,031,924
1966	11,465	2,414,905	119	19,326	11,584	2,434,231
1967	.....	.....	76	3,215	76	3,215
1968	.....	.....	67	2,814	67	2,814

**Bauxite**

Following a survey of bauxite deposits, which occur over a large area in the Darling Range, trial shipments of bauxite totalling 36,741 tons were sent to Tasmania and Japan in 1959 and 1960. In 1961 the Alumina Refinery Agreement Act was passed by the State Parliament ratifying an agreement between the Government and Western Aluminium No Liability for the construction of a refinery at Kwinana to produce alumina from bauxite mined in the Darling Range and for the export of bauxite. A summary of the main provisions of the Act appears on page 104 of the *Official Year Book of Western Australia*, No. 4—1964. The refinery commenced production of alumina towards the end of 1963 with an initial annual capacity of 210,000 metric tons. The capacity of the refinery has been progressively expanded to 830,000 metric tons and further expansion is being undertaken which will increase the capacity to 1,250,000 tons per annum by the end of 1970. Alumina from the refinery is shipped to Victoria for reduction to aluminium, and exported to Japan and the United States of America. Exports to the Bahrain Islands are planned to commence in the first half of 1971.

An agreement between the State Government and Western Aluminium No Liability permitting the company to construct a second refinery to be located in the Pinjarra area south of Perth was ratified by Parliament in terms of the *Alumina Refinery (Pinjarra) Agreement Act, 1969*. The initial capacity of the refinery is planned to be 210,000 metric tons per annum and it is anticipated that production of alumina will commence early in 1972. Alcoa of Australia (W.A.) N.L. has since replaced Western Aluminium No Liability as the operating company in both agreements.

Development of the extensive bauxite deposits discovered in the Admiralty Gulf area in the Kimberley in 1965 by Amax Bauxite Corporation is planned under the provisions of the *Alumina Refinery (Mitchell Plateau) Agreement Act, 1969*. Total expenditure on developing the mine, and on the construction of a townsite, port, alumina refinery and other ancillary services is expected to exceed \$300 million. Construction is planned to begin early in 1971 and for production to commence in 1973 or early 1974.

**Beryllium Ore**

Beryl occurs in many localities throughout the State but is obtained mainly from the Coolgardie district. Production was negligible until, as a result of the wartime demand for beryllium-copper alloys, 548 tons were produced in 1943 and 387 tons in 1944. It then declined but later recovered to some extent, reaching a post-war peak of 350 tons in 1957. In recent years production has been quite small and in 1968 was only 14 tons.

## PRODUCTION OF BERYL

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	80	14	13	11	14
Value (\$) ....	18,076	2,891	2,992	3,682	5,668

## Coal

The first reports of coal discoveries, in the Murray district and on the Irwin River, were made in 1846 but the only commercial production in Western Australia occurs at the Collie River Mineral Field. The coal is sub-bituminous in rank and there are substantial reserves in the area.

Annual production exceeded 1 million tons for the first time in 1954, but in 1956 it fell to 830,007 tons. It increased in each of the next four years and in 1960 production totalled 922,393 tons. A major producer closed its mines on the termination in December 1960 of its contract for the supply of coal to the State Government, and production declined to 765,740 tons in 1961. There was a substantial recovery in 1962, when 919,112 tons were produced. This recovery has been maintained and production in 1968 was 1,087,379 tons, the highest ever recorded.

### COAL PRODUCTION

Year	Quantity			Value
	From deep mines	From open cuts	Total	
	tons	tons	tons	\$
1964	644,107	343,313	987,420	4,678,934
1965	508,260	485,481	993,741	4,409,972
1966	493,256	567,839	1,061,095	4,562,087
1967	494,281	567,870	1,062,151	4,764,502
1968	482,219	605,160	1,087,379	4,816,725

Open-cut mining was commenced at Collie in 1943 and the amount produced by this means increased rapidly until in 1952 almost one-half of the total production came from open cuts. In each year from 1953 to 1960 the proportion of open-cut coal was less than in 1952, and in 1960 was little more than one-eighth of all coal produced. New contracts for government requirements, which came into operation at the beginning of 1961, provided for an increase in supplies from open-cuts, and in 1968 more than 55 per cent of all coal produced came from this source.

For some years after the war, employment in coal mining rose steadily and reached 1,560 in 1954. It then declined and in 1960 had fallen to 984. There was a sharp decrease in 1961 when the total was only 582, of whom one-third were employed above ground compared with about one-fifth in each of the three previous years. In each year from 1962 to 1966, the number of men employed exceeded 700, the proportion of those working above ground having risen to over two fifths in 1966. Employment in 1968 was 649 of whom 271 were employed above ground and 378 below ground.

### MEN WORKING AT COAL MINES (a)

Description	1964	1965	1966	1967	1968
Above ground	246	293	307	284	271
Below ground	519	467	419	410	378
Total	765	760	726	694	649

(a) Average number employed over the whole year.

## Copper Ore and Concentrates

Copper ore in commercial quantities was discovered in 1849 in the Northampton district. High-grade ore was found in 1855 at Bowes River in the same area and in 1872 one of the richest deposits was discovered in the West Pilbara near Roebourne. Considerable quantities of copper have been produced at the mines in the Northampton

district, where it occurs in association with lead, and also in the Ravensthorpe area, in association with gold. Another important producer has been the Murrin Murrin district in the Mount Margaret area.

Due to low prices, rising costs of mining and treatment and the exhaustion of rich secondary ores near the surface, production was on a very small scale between 1925 and 1956. It then increased substantially and in 1961 reached 6,290 tons valued at \$651,392. In the succeeding years production has fluctuated and in 1968 amounted to 4,276 tons worth \$908,221.

**PRODUCTION OF COPPER CONCENTRATES (a)**  
(For smelting to copper)

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	4,619	2,052	3,268	3,093	4,276
Value (\$) ....	558,068	258,517	524,827	558,835	908,221

(a) For production of cupreous ore for fertiliser see following section.

**Cupreous Ore (for fertiliser)**

The demand for copper to remedy trace element deficiencies in soils created a market for low-grade ores for use in chemical fertilisers. Until this development, the production of ores having a low copper content was uneconomical because of high costs of transport and smelting.

**PRODUCTION OF CUPREOUS ORE FOR FERTILISER**

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	2,197	1,079	962	776	691
Value (\$) ....	251,970	99,234	87,954	52,126	51,231

Production for use in fertilisers commenced in 1947 and increased to 7,731 tons in 1955. After reaching a peak of 11,859 tons in 1959, it declined in 1960 and 1961 but improved to 9,275 tons in 1962. In subsequent years production decreased substantially and in 1968 amounted to only 691 tons. The Yalgoo, Pilbara and Peak Hill areas are the principal sources of supply.

**Ilmenite, Leucoxene, Monazite, Rutile, Xenotime and Zircon**

Although beach sands being treated near Bunbury, Busselton and Capel also contain leucoxene, monazite, rutile, xenotime and zircon, the ilmenite content is of particular importance because it is virtually chrome-free and little difficulty is experienced in producing a concentrate of high quality. Operations began in 1956, when the recorded production of ilmenite concentrates was 3,293 tons valued at \$30,300. Output has risen rapidly and in 1968, production amounted to 535,232 tons valued at \$5,357,184.

**PRODUCTION OF ILMENITE CONCENTRATES**

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	297,322	430,455	497,848	529,914	535,232
Value (\$) ....	2,811,812	4,331,784	4,801,929	5,182,305	5,357,184

Concentrates containing leucoxene, monazite, rutile, xenotime and zircon are recovered as by-products from the treatment of the beach sands and the first shipments were made in 1958, when 513 tons of concentrates valued at \$33,518 were exported. In 1968 recorded production totalled 31,822 tons valued at \$1,228,664.

**PRODUCTION OF LEUCOXENE, MONAZITE, RUTILE, XENOTIME AND ZIRCON CONCENTRATES**

Year	Leucoxene		Monazite		Rutile		Xenotime		Zircon		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$	tons	\$	tons	\$	tons	\$
1964	656	26,660	1,126	97,294	669	42,150	....	....	21,511	435,402	23,962	601,506
1965	380	16,858	1,447	155,040	225	15,990	....	....	23,410	687,310	25,462	875,198
1966	756	31,273	1,346	162,778	576	40,515	....	....	25,159	899,263	27,837	1,133,829
1967	696	35,257	1,570	207,370	400	28,757	18	45,000	32,166	1,193,369	34,850	1,509,753
1968	1,607	75,607	1,256	152,007	845	66,773	18	45,000	28,096	889,277	31,822	1,228,664

## Iron

Iron-ore deposits are widely distributed throughout Western Australia and the State's iron-ore reserves have been assessed at over 18,000 million tons of high-grade ore. Since 1951 large quantities of hematite have been produced at Cockatoo Island (Yampi Sound) in the West Kimberley district for shipment to other Australian States. The first shipment of ore from the deposits on the adjacent Koolan Island was made in January 1965, following the completion of mining and loading facilities which had been under development since 1960.

In recent years there have been a number of developments in connection with iron-ore deposits which have led to greatly expanded production.

As a result of the passage in 1960 of the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, which ratifies an agreement between the State Government and the Company relating to the establishment of an integrated iron and steel industry in Western Australia, developmental work was undertaken in the Koolyanobbing Range and production from the Company's leases in this area commenced in April 1967. The ore is being railed to Kwinana for use in the blast furnace established at Kwinana in terms of the agreement, and for export interstate.

The announcement in December 1960 of the Commonwealth Government's decision to modify its embargo on overseas exports, which had been in force since 1938, caused increased interest in Western Australian deposits. The subdivision of the deposits (other than those reserved for the domestic iron and steel industry under the Commonwealth's revised export policy) into three categories was announced by the State Government in March 1961. The first category includes known high-grade deposits, not covered by lease agreements, which are to be retained by the Crown to ensure supplies for the State's steel requirements or for export. The second category, being known medium and low-grade deposits, and the third category, comprising deposits as yet undiscovered, may be made the subject of temporary reservations granting the right to explore, each such reservation being limited to a maximum area of fifty square miles.

The State Parliament ratified a number of agreements between the Government and private companies for the mining and export of iron ore and, in certain instances, for secondary processing of the ore as a later development and, ultimately, for the establishment of integrated iron and steel works. The provisions of these agreements are referred to on pages 106 and 110 of the *Official Year Book of Western Australia*, No. 4—1964, in the section *Legislation during 1963 and 1964* in Chapter III of the succeeding issue, on page 114 of the *Western Australian Year Book*, No. 6—1967, on page 111 of the 1969 Year Book and on page 113 of the 1970 issue. The ore is now being exported overseas, mainly to Japan. A number of contracts between leading Japanese steel mills and certain of the mining companies resulted in large-scale mining operations which commenced in 1966. Ore from Koolanooka Hills, near Morawa, is being transported by rail to the port of Geraldton, 100 miles distant. From Mount Goldsworthy, about seventy miles east of Port Hedland, ore is being railed to a deep-water port on Finucane Island, just off Port Hedland. Ore mined at Mount Tom Price, in the Hamersley Range area south-west of Port Hedland, is being railed 182 miles to the port of Dampier in King Bay, which is west of Roebourne. From Mount Whaleback in the Ophalmia Range

ore is railed to Port Hedland, 265 miles to the north. The first shipments of iron ore under these contracts were made from Geraldton on 17 March 1966; from Port Hedland on 2 June 1966; and from Dampier on 22 August 1966. At 31 March 1970 contracts had been signed for the delivery of 939 million tons of iron ore and pellets with an f.o.b. value of \$6,779 million and more than \$600 million had been spent by the companies on mine development, railways, townships, deep-water ports and pelletising facilities. Further development will involve expenditure currently estimated in excess of \$1,460 million.

#### PRODUCTION OF IRON ORE

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	1,357,715	2,313,434	6,106,105	12,160,702	18,827,593
Value (\$) ....	2,770,930	4,662,022	33,771,718	84,358,259	131,939,262

Pig-iron production in Western Australia began in 1948 at Wundowie in the Darling Range east of Perth using charcoal produced from local eucalypts. Originally, brown iron ore (limonite) mined near Wundowie was used in the smelting process, but has been replaced by ore obtained from Koolyanobbing, east of Bullfinch in the Yilgarn district. The extensive deposits in the Koolyanobbing area are mainly high-grade hematite ores with some limonite. Pig-iron is also produced at Kwinana where production commenced in May 1968.

#### Lead Ore

Lead ore was discovered near the lower Murchison River in 1848, at what became known as the Geraldine Mine. It has since been found in other localities, principally in the Pilbara, Ashburton and West Kimberley districts, and a half a million tons have been raised, the great bulk of it from the mineral field around Northampton, the area of the first finds. Production fluctuated very widely and ceased almost entirely during the war, but a substantial increase occurred in the post-war years and in 1956 it rose to 7,613 tons. After 1956 it declined rapidly and in 1963 only 185 tons were produced. In 1964, when 3,354 tons were produced, there was a revival of lead mining in the West Kimberley mineral field. After a further gain to 4,878 tons in 1965, production again declined and in 1968 was only 418 tons.

Although the ore from the Northampton field is almost free from silver, that from other areas further north, notably the Ashburton, Pilbara and West Kimberley, has a silver content which may be as much as ten ounces per ton. Production of such ores is included in the following table.

#### PRODUCTION OF LEAD, SILVER-LEAD, AND SILVER-LEAD-ZINC ORES (a)

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	3,354	4,878	2,681	910	418
Value (\$) ....	198,868	401,978	109,242	96,893	40,957

(a) Including concentrates.

#### Manganese Ore

Deposits of manganese ore occur in several parts of the State but up to the end of 1947 only 252 tons had been mined. After 1947 production increased rapidly and in 1961 totalled 83,660 tons valued at \$2,141,390. After a decline to 34,808 tons in 1963, production increased and in 1967 a record output of 195,065 tons valued at \$4,465,602 was produced. In 1968 production fell to 150,338 tons valued at \$3,135,445. Four-fifths of the quantity mined in 1968 came from the Pilbara field, the remainder being obtained from the Peak Hill field.

## PRODUCTION OF MANGANESE ORE

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	60,182	97,901	183,209	195,065	150,338
Value (\$) ....	1,415,788	2,106,058	4,091,257	4,465,602	3,135,445

**Nickel**

The discovery of nickel deposits at Kambalda, thirty miles south of Kalgoorlie, was announced in March 1966 by Western Mining Corporation Limited. Production from the deposits commenced in June 1967 and for the year ended 30 June 1970 totalled 607,166 tons of ore from which 155,177 tons of nickel concentrates were produced. The company has announced that the proven reserves of nickel sulphide ore at Kambalda and Saint Ives were an estimated 17,169,000 tons containing an average of 3·4 per cent nickel metal.

During the year ended 30 June 1970 two additional enterprises commenced mining nickel ore—the Great Boulder Gold Mines Ltd. and North Kalgurli (1912) Ltd. joint venture at Scotia, and the Metals Exploration N.L. and Freeport of Australia Inc. joint venture at Nepean. A fourth enterprise, Poseidon N.L., has announced that it will commence mining nickel ore from its Windarra deposits during 1970.

The nickel refinery of Western Mining Corporation at Kwinana, constructed in terms of the *Nickel Refinery (Western Mining Corporation Limited) Agreement Act, 1968*, was completed in May 1970. Production of nickel metal, using nickel concentrates railed from the Company's Kambalda plant, commenced in the same month and the refinery began operating at its designed capacity of 15,000 tons of nickel metal per annum early in 1971. In September 1970 it was announced that a nickel smelter would be constructed at Kalgoorlie for the Company under the provisions of the above Act.

The search for nickel has continued with increasing intensity in many areas throughout the State and a number of promising discoveries of nickel ore have been made. Intensive drilling programmes are being carried out to prove the extent of the ore bodies.

**Petroleum**

Reference to petroleum exploration in Western Australia is made on page 396. In May 1966 Barrow Island, sixty miles north-east of Onslow, was declared a commercial oilfield, after prolonged testing. Production commenced in 1967 and the first shipment of crude oil from this field was made on 25 April 1967. The development of the oilfield is progressing and the recoverable reserves of oil are currently estimated at 200 million barrels. Details of crude oil production are shown in the table on page 384.

During 1969 West Australian Petroleum Pty. Ltd. commenced a survey for a pipeline to carry gas from Dongara to Perth and on 1 July 1970 it was announced that a natural gas transmission pipeline, 255 miles in length and costing \$19 million would, subject to government approval, be built from Dongara to Kwinana and Pinjarra. Initially, gas will be piped from four fields—Dongara, Mondarra, Yardarino and Gingin, all of which were declared commercial fields on 1 July 1970.

**Potash**

At Lake MacLeod, north of Carnarvon, Texada Mines Pty. Limited has completed a \$300,000 proving programme for the production of potash from brine and the company is proceeding with the establishment of a potash industry at an estimated cost of \$13 million. An agreement between the Western Australian Government and Texada Mines Pty. Limited relating to the production of potash and other evaporites at or near Lake MacLeod was ratified by Parliament in terms of the *Evaporites (Lake MacLeod) Agreement Act, 1967*.

The company has developed a port at Cape Cuvier and has commenced exporting salt which is produced as a by-product of potash production. It is expected that the volume of exports of salt will exceed 500,000 tons by 1971.

### Pyrites

The mining of iron pyrites was developed during the war to provide a substitute for overseas supplies of sulphur required for the manufacture of sulphuric acid for super-phosphate. Production at Norseman, which was the principal source of supply since 1942, ceased in June 1968. A second source of supply was developed in 1956 when a metropolitan works commenced using concentrates from a gold mine at Kalgoorlie for the extraction of gold and sulphur. Sulphur is still being obtained from this source.

#### PRODUCTION OF IRON PYRITES (ORE AND CONCENTRATES)

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	58,396	59,180	76,136	78,685	32,879
Value (\$) ...	1,109,078	1,048,425	1,070,135	1,113,400	420,825

### Salt

Common salt (sodium chloride) occurs extensively in Western Australia both in maritime lagoons and inland lakes and has been harvested on a commercial basis for many years from dry lake beds. Norseman Gold Mines No Liability has commenced production of salt from Lake Lefroy in the Shire of Coolgardie and by 1973 exports of salt from these deposits are expected to reach 500,000 tons.

In recent years the production of salt by the solar evaporation of sea water has become the major source of salt in this State. The low rainfall in the North-West coupled with the high evaporation rate make the north-west coast ideal for solar salt production. Leslie Salt Company is producing salt near Port Hedland; Texada Mines Pty. Limited is producing at Lake MacLeod near Carnarvon and the Shark Bay Salt and Gypsum Venture is engaged in salt production at Useless Loop in Shark Bay. Dampier Salt Limited at Dampier and Exmouth Salt (1969) Pty. Ltd. at Exmouth Gulf are also engaged in the construction of solar salt projects. The salt industry is being developed principally for the export market and to date all exports have been to Japan.

### Tin Ore

Tin ore was first discovered at Greenbushes in 1888. It has since been found at several other places, but the Greenbushes and Pilbara fields have been the only major producers. Output declined during the war but increased substantially after 1949 and reached a peak in 1956 when 358 tons of ore and concentrates valued at \$416,546 were produced. In 1958 it declined to 138 tons valued at \$154,638, the decrease being due mainly to contraction of operations in the Greenbushes field. After 1958 production again increased and in 1968 total output was 895 tons valued at \$1,658,241.

#### PRODUCTION OF TIN ORE AND CONCENTRATES

Particulars	1964	1965	1966	1967	1968
Quantity (tons) ....	637	679	973	1,074	895
Value (\$) ...	1,240,782	1,558,770	2,072,176	2,197,648	1,658,241

### Other Minerals

In addition to the other minerals listed in the table on page 384 there are some which have a high potential value but are not produced in large quantities at present. Zinc is associated with many of the silver-lead ores and some of the copper ores and has been mined as the carbonate with a zinc content of 38 per cent. Arsenious oxide and antimonial concentrates were produced commercially for some years as by-products in the treatment of auriferous ores. Small amounts of bismuth concentrates assaying as high

as 73 per cent bismuth have also been produced. Production of tantalum ores and concentrates has fluctuated with demand, but a large part of world requirements has been met from the State's resources. Tungsten ores have been produced in small quantities for some years with a slight increase during the war. Since then, output has been spasmodic. Glass sand (silica) is being produced and significant quantities are being exported overseas. Lithium, yttrium, cerium, thorium, vanadium, niobium, and molybdenum-bearing minerals are known to occur in commercial quantities and small amounts of minerals containing uranium, rubidium and caesium have been found. Deposits of bentonite, barytes, graphite, mica, kyanite, sillimanite, spodumene and vermiculite are also known and small amounts have been produced.

### Quarry Products

The following table gives details of the production of certain quarry products from 1964 to 1968. It should be noted that gravel, sand and clays, for which reliable and complete information cannot be obtained, are not included.

Gross values of production of quarry products during 1964-65 to 1968-69 appear in the second table on page 339.

SELECTED ITEMS OF QUARRY PRODUCTION

Year	Building and monumental stone (a)	Other stone	
		Granite, diorite, quartzite, basalt, etc. (b)	Limestone and shell (c)
	tons	tons	tons
1964	148,939	1,750,351	749,062
1965	185,588	2,078,940	949,358
1966	146,687	2,157,330	1,362,919
1967	126,998	2,480,117	1,276,391
1968	169,793	3,056,309	1,336,260

(a) Calcareous sandstone (including limestone) and granite.

(b) Principally for roads, concrete aggregate, filling, etc.

(c) Principally for the manufacture of lime and cement and for road making.

## PRIVATE EXPLORATION FOR MINERALS

### Mineral Exploration (excluding petroleum)

Mineral exploration in the State has shown very rapid growth in recent years and is now at the highest level ever known in Western Australia. The search, which covers a major portion of the State, is concerned chiefly with exploration for iron, nickel, copper, gold, lead, tin, bauxite, manganese, phosphates, evaporites, asbestos and coal, apart from petroleum (see following section).

In the next table, details are given of private exploration in Western Australia for the years 1965 to 1968-69. The data have been derived from the annual Mineral Exploration Census (excluding Petroleum Exploration) which is carried out by the Commonwealth Bureau of Census and Statistics. The first census was conducted in respect of the year 1965 and for further information and statistics in greater detail, the reader is referred to the mimeographed publication *Mineral Exploration* issued by the Commonwealth Statistician, Canberra.

For the purpose of the census, 'mineral exploration' consists of the search for, and/or appraisal of, new ore occurrences and known deposits of minerals (including extensions to deposits being worked) by geological, geophysical, geochemical, and other methods, including drilling. The construction of shafts and adits is included if primarily for exploration purposes but mine development activities and exploration for water are excluded.



## MINERAL EXPLORATION (OTHER THAN FOR PETROLEUM)

Particulars	Unit	1965	1966	1967	1968	1968-69 (a)
PRIVATE EXPLORATION (b) ON PRODUCTION LEASES						
Expenditure (c)—						
On drilling ....	\$'000	785	645	801	909	2,184
Other (d) ....	\$'000	690	777	329	468	1,120
Total ....	\$'000	1,475	1,422	1,130	1,377	3,305
Payments to contractors (e) ....	\$'000	93	91	194	204	1,435
Employment (f)—						
Professional persons (g) ....	man-week	1,450	1,598	895	795	1,566
Non-professional persons (h) ....	man-week	5,694	5,776	3,742	4,819	5,255
Total man-weeks worked ....	man-week	7,144	7,374	4,637	5,614	6,821
Footage drilled, sunk or driven—						
Drilled—						
Core ....	feet	151,412	168,805	134,010	111,297	228,086
Non-core ....	feet	23,681	63,138	111,346	244,919	307,234
Total ....	feet	175,093	231,943	245,356	356,216	535,320
Sunk or driven (i) ....	feet	37,705	6,560	2,605	11,190	83,549

## OTHER PRIVATE EXPLORATION (b)

Expenditure (c)—						
On drilling ....	\$'000	807	1,580	2,512	*5,558	8,279
Other (d) ....	\$'000	1,666	3,532	6,561	*16,213	23,828
Total ....	\$'000	2,473	5,112	9,073	21,771	32,107
Payments to contractors (e) ....	\$'000	446	1,671	2,965	7,382	12,226
Employment (f)—						
Professional persons (g) ....	man-week	2,342	4,742	12,885	13,668	16,770
Non-professional persons (h) ....	man-week	3,700	11,102	20,097	33,555	44,083
Total man-weeks worked ....	man-week	6,042	15,844	32,982	47,223	60,853
Footage, drilled, sunk or driven—						
Drilled—						
Core ....	feet	46,813	150,588	227,658	603,532	771,062
Non-core ....	feet	81,456	247,094	426,128	785,363	1,064,579
Total ....	feet	128,269	397,682	653,786	1,388,895	1,835,641
Sunk or driven (i) ....	feet	1,942	3,351	5,347	11,530	38,041

## TOTAL PRIVATE EXPLORATION (b)

Expenditure (c)—						
On drilling ....	\$'000	1,593	2,225	3,313	*6,467	10,464
Other (d) ....	\$'000	2,355	4,309	6,890	*16,681	24,948
Total ....	\$'000	3,948	6,534	10,203	23,148	35,412
Payments to contractors (e) ....	\$'000	539	1,762	3,159	7,586	13,661
Employment (f)—						
Professional persons (g) ....	man-week	3,792	6,340	13,780	14,463	18,336
Non-professional persons (h) ....	man-week	9,394	16,878	23,839	38,374	49,338
Total man-weeks worked ....	man-week	13,186	23,218	37,619	52,837	67,674
Footage drilled, sunk or driven—						
Drilled—						
Core ....	feet	198,225	319,393	361,668	714,829	999,148
Non-core ....	feet	105,137	310,232	537,474	1,030,282	1,371,813
Total ....	feet	303,362	629,625	899,142	1,745,111	2,370,961
Sunk or driven (i) ....	feet	39,647	9,911	7,952	22,720	121,590

(a) The annual census of mineral exploration was changed to a fiscal year basis commencing with the year ended 30 June 1969.  
 (b) Excludes exploration by the Western Australian Department of Mines and the Commonwealth Bureau of Mineral Resources, Geology and Geophysics.  
 (c) Expenditure whether charged as working expenses or capitalised. Includes payments to contractors.  
 (d) Includes geological expenditure and expenditure on adits, shafts, etc.  
 (e) Amounts paid to drilling contractors, geological consultants, technical advisers, etc. for exploration services. Included in preceding figures.  
 (f) Comprises the operator and his staff only; includes time spent on report writing and similar off-site activities associated with exploration; excludes contractors and their employees.  
 (g) Geologists, geophysicists, engineers, etc. engaged in exploration work.  
 (h) Drill operators, field hands, etc.  
 (i) Includes shafts, winzes, etc. sunk and drives, adits, etc. driven.  
 \* Revised.

## Petroleum Exploration

An extensive programme of oil exploration using modern geophysical and drilling techniques commenced in 1952 and resulted in the discovery of flow oil in the Exmouth Gulf area of the Carnarvon Basin in 1953. The discovery proved to be of non-commercial significance, but it stimulated further exploration for oil in Western Australia. A large area of the State has now been scientifically examined and geophysical and geological surveys are still being carried out. Discoveries of crude oil and/or gas have been made at Barrow Island and Yardarino (1964), at Gingin (1965), at Dongara (1966), at Pascoe Island (1967), at Mondarra (1968) and in Legendre No. 1 well off the north-west coast. This well, which is fifty miles north of Legendre Island, produced the first oil flow from any sea well on the Western Australian continental shelf.

Offshore exploration is continuing and during 1970 a jack-up drilling barge and two floating drilling vessels carried out drilling at various locations in waters adjacent to Western Australia.

Information on petroleum exploration expenditure and on drilling in Western Australia for the five years 1965 to 1969 is given in the tables below. These figures have been compiled from data published by the Commonwealth Bureau of Mineral Resources, Geology and Geophysics.

Petroleum exploration is defined as consisting of the search for, and or appraisal of, deposits of crude petroleum and/or gas by geological, geophysical, geochemical and other means, including drilling. Included in the expenditure are the costs of drilling exploratory oil and/or gas wells and the testing of such wells. Also included are the costs of access roads, site construction, permits, licences and similar fees, relevant office buildings and furniture, transportation equipment, storage facilities, plant and equipment and review work if primarily for the purposes of exploration for deposits of petroleum or natural gas. The cost of drilling developmental oil and/or gas wells and expenditure on production facilities, and pipelines and production costs, etc. are excluded.

PRIVATE PETROLEUM EXPLORATION—EXPENDITURE AND SOURCE OF FUNDS  
(\$'000)

Particulars	1965	1966	1967	1968	1969
Private expenditure (a)—					
Geological ....	507	482	1,159	449	516
Geophysical ....	8,898	9,242	7,282	6,027	6,684
Drilling ....	7,068	7,829	6,397	17,462	23,847
Other ....	260	1,069	649	2,207	2,044
Total ....	16,732	18,621	15,488	26,145	33,091
Source of funds—					
Private sources ....	14,245	15,267	12,047	22,118	26,806
Government subsidy (b) ....	2,487	3,355	3,441	4,027	6,286

(a) Includes expenditure financed by payments under the *Petroleum Search Subsidy Act* 1959–1969 (Commonwealth).

(b) Comprises payments under the *Petroleum Search Subsidy Act* 1959–1969.

PRIVATE PETROLEUM EXPLORATION—WELLS AND FOOTAGE DRILLED (a)

Particulars	1965	1966	1967	1968	1969
Wells drilled (b) .... No.	37	37	194	127	206
Average total depth of wells drilled (c) .... ft	5,394	6,449	5,444	5,832	7,500
Wells completed as potential oil producers .... No.	14	12	164	53	97
Wells completed as potential gas producers .... No.	2	5	2	1	7
Wells drilled or drilling over 10,000 ft .... No.	5	7	4	5	9
Footage drilled—					
Completed wells .... ft	183,786	178,681	561,324	406,189	636,818
Uncompleted holes (d) .... ft	30,812	21,448	7,714	30,811	10,871
Total footage drilled .... ft	214,598	200,129	569,038	437,000	647,689

(a) With the exception of 'Average total depth of wells drilled' for 1967 and 1968, the data include particulars for developmental wells.

(b) Number of holes which reached total depth during the year.

(c) See footnote (a).

(d) Comprises

wells suspended and wells on which drilling was in progress at 31 December of the year shown.

## *Chapter VIII—continued*

### **Part 2—Secondary Industry**

#### EXPLANATORY NOTES AND DEFINITIONS

The figures quoted in this Part cover all industrial establishments conforming to the definition of a factory as used for the collection of data in annual factory censuses up to and including the census for the year 1967-68. Power stations and gas works are included. The definitions given below for 'factory', 'employment', 'salaries and wages', 'value of output' and 'net production' are relevant to such censuses.

Census data for 1968-69 and future years will be on a new basis but detailed figures for 1968-69 are not yet available. In respect of the year 1968-69, the Commonwealth Bureau of Census and Statistics conducted the annual census of manufacturing as part of a programme of fully integrated economic censuses covering manufacturing and mining industries, and wholesale and retail trade. This has been a major undertaking involving the development of new concepts, definitions and procedures. For these reasons, processing of the statistics has taken considerably longer than usual. Further details relating to the 1968-69 integrated economic censuses and of the new concepts and methods adopted appear in the *Appendix* together with a summary of the preliminary results of these censuses.

#### **Factory**

For statistical purposes a factory is defined as any establishment which is engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year or power other than manual is used.

#### **Employment**

Average employment figures may be expressed as an average 'over the period worked' or as an average 'over the whole year'. Thus, a factory which operates for only six months of the year and employs twenty persons throughout that period has an average employment of twenty 'over the period worked' but an average of only ten 'over the whole year'. Where seasonal industries, such as meat and fish preserving, whaling or fruit packing, are involved there can consequently be a considerable difference between figures covering the same field if different bases are used in their computation. In this Part, unless otherwise stated, employment figures are quoted as an average 'over the whole year' and include working proprietors, but exclude all persons engaged in obtaining raw materials (*e.g.* fallers and haulers employed by sawmills) and all persons engaged in selling and distribution.

#### **Salaries and Wages**

Salaries and wages quoted exclude amounts drawn by working proprietors.

#### **Value of Output**

The value of output is the selling value 'at the factory' (*i.e.* the value at the point of sale less all selling and distribution costs) of all goods made or processed during the year and includes the amount received for other work done, such as repair work, assembling and making-up for customers. Any bounty or subsidy received on finished products is included.

### Net Production

'Net Production' is the value added in the course of manufacture and is the sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. It is obtained by deducting from the value of output the cost of goods consumed in the process of production. The costs deducted are those of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing. Much of the output of primary industry becomes raw material of secondary industries and value of net production should therefore be used when comparing or combining values for secondary industries with those for primary industries.

### Confidential Information

The Acts under which these statistics are collected require that information supplied on any individual return must be treated as confidential. For this reason it has not been possible to publish some items and in other cases it has been necessary to combine details for publication. The tables affected carry appropriate footnotes.

## THE CLASSIFICATION OF FACTORIES

In the compilation of statistical data relating to factories in Australia, a standard classification of manufacturing industries is used. It is designed in accordance with decisions of the 1945 Conference of Statisticians, and represents a revision and extension of a classification which was introduced in 1930-31, replacing the revised versions of the original classification formulated in 1902. The construction of a new classification, compatible with the United Nations International Standard Industrial Classification, is being undertaken and a preliminary edition of the new classification was introduced for the 1968-69 census of manufacturing.

Where the nature of the goods produced would place a factory in more than one sub-class of industry but its activities cannot be thus separated, it is classified according to its predominant activity.

Owing to limitations of space, details published in general tables in this Part are confined to the sixteen classes of industry. Details relating to each of the sub-classes applicable to this State may be found in the *Statistical Register of Western Australia—Part VI, Factory Statistics*.

The classes and sub-classes in the classification of factories used for the 1967-68 factory census and earlier years are shown below. In the case of several of the sub-classes listed there is no recorded activity in Western Australia.

### CLASSIFICATION OF FACTORIES

#### CLASS 1. TREATMENT OF NON-METALLIFEROUS MINE AND QUARRY PRODUCTS

Coke works  
Briquetting and pulverised coal  
Carbide  
Lime, plaster of paris, asphalt  
Fibrous plaster and products  
Marble, slate, etc.  
Cement, portland  
Asbestos cement sheets and mouldings  
Other cement goods  
Other

#### CLASS 2. BRICKS, POTTERY, GLASS, ETC.

Bricks and tiles  
Earthenware, china, porcelain, terracotta  
Glass (other than bottles)  
Glass bottles  
Other

#### CLASS 3. CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE

Industrial and heavy chemicals and acids  
Pharmaceutical and toilet preparations  
Explosives (including fireworks)  
White lead, paints and varnish  
Oils, vegetable  
Oils, mineral  
Oils, animal  
Boiling down, tallow refining  
Soap and candles  
Chemical fertilisers  
Inks, polishes, etc.  
Matches  
Other

**CLASS 4. INDUSTRIAL METALS, MACHINES, IMPLEMENTS AND CONVEYANCES**

Smelting, converting, refining, rolling of iron and steel  
 Foundries (ferrous)  
 Plant, equipment and machinery, including machine tools  
 Other engineering  
 Extracting and refining of other metals; alloys  
 Electrical machinery, cables and apparatus  
 Construction and repair of vehicles—  
   Tramcars and railway rolling stock—  
     Government and municipal  
     Other  
   Motor vehicles—  
     Construction and assembly  
     Repairs  
   Motor bodies  
   Horse-drawn vehicles  
   Motor accessories  
   Aircraft  
   Cycles and accessories  
   Other  
 Ship and boat building and repairing, marine engineering—  
   Government  
   Other  
 Cutlery and small hand tools  
 Agricultural machines and implements  
 Non-ferrous metals—  
   Rolling and extrusion  
   Founding, casting, etc.  
 Sheet metal working, pressing and stamping  
 Pipes, tubes and fittings—Ferrous  
 Wire and wire working (including nails)  
 Stoves, ovens and ranges  
 Gas fittings and meters  
 Lead mills  
 Sewing machines  
 Arms, ammunition (excluding explosives)  
 Wireless and amplifying apparatus  
 Other metal works

**CLASS 5. PRECIOUS METALS, JEWELLERY, PLATE**

Jewellery  
 Watches and clocks (including repairs)  
 Electroplating (gold, silver, chromium, etc.)

**CLASS 6. TEXTILES AND TEXTILE GOODS (INCLUDING OF KNITTED GOODS)**

Cotton ginning  
 Cotton spinning and weaving  
 Wool—carding, spinning, weaving  
 Hosiery and other knitted goods  
 Silk, natural  
 Rayon, acrylics and other synthetic fibres  
 Flax mills  
 Rope and cordage  
 Canvas goods, tents, tarpaulins, etc.  
 Bags and sacks  
 Textile dyeing, printing and finishing  
 Other

**CLASS 7. SKINS AND LEATHER (NOT CLOTHING OR FOOTWEAR)**

Furriers and fur-dressing  
 Woollscouring and fellmongery  
 Tanning, currying and leather-dressing  
 Saddlery, harness and whips  
 Machine belting (leather or other)  
 Bags, trunks and other goods of leather and leather substitutes

**CLASS 8. CLOTHING (EXCEPT KNITTED)**

Tailoring and ready-made clothing  
 Waterproof and oilskin clothing  
 Dressmaking, hemstitching  
 Millinery  
 Shirts, collars, underclothing  
 Foundation garments  
 Handkerchiefs, ties and scarves  
 Hats and caps  
 Gloves  
 Boots and shoes (not rubber)  
 Boot and shoe repairing  
 Boot and shoe accessories  
 Umbrellas and walking sticks  
 Dyeworks and cleaning (including renovating and repairing)  
 Other

**CLASS 9. FOOD, DRINK AND TOBACCO**

Flour-milling  
 Cereal foods and starch  
 Animal and bird foods  
 Chaffcutting and corncrushing  
 Bakeries (including cakes and pastry)  
 Biscuits  
 Sugar mills  
 Sugar refining  
 Confectionery (including chocolate and icing sugar)  
 Jam, fruit and vegetable canning  
 Pickles, sauces, vinegar  
 Bacon curing  
 Butter factories  
 Cheese factories  
 Condensed and dried milk factories  
 Margarine  
 Meat and fish preserving  
 Condiments, coffee, spices  
 Ice and refrigerating  
 Salt  
 Aerated waters, cordials, etc.  
 Breweries  
 Distilleries  
 Winemaking  
 Cider and perry  
 Malting  
 Bottling  
 Tobacco, cigars, cigarettes, snuff  
 Dehydrated fruit and vegetables  
 Ice cream  
 Sausage casings  
 Arrowroot  
 Other

**CLASS 10. SAWMILLING, WOODWORKING AND BASKETWARE**

Sawmills—sawing from the log  
 Sawmills—resawing, dressing, etc.  
 Plywood mills (including veneers)  
 Bark mills  
 Joinery  
 Cooperage  
 Boxes and cases  
 Woodturning, woodcarving, etc.  
 Basketware and wickerware (including seagrass and bamboo furniture)  
 Perambulators (including pushers and strollers)  
 Wall and ceiling boards (not plaster or cement)  
 Other

## CLASS 11. FURNITURE OF WOOD, BEDDING, ETC.

Cabinet and furniture making (including billiard tables and upholstery)  
 Bedding and mattresses (not wire)  
 Furnishing drapery  
 Picture frames  
 Blinds

## CLASS 12. PAPER, STATIONERY, PRINTING, BOOK-BINDING, ETC.

Newspapers and periodicals  
 Printing, government  
 Printing, general (including bookbinding)  
 Manufactured stationery  
 Stereotyping, electrotyping  
 Process and photoengraving  
 Cardboard boxes, cartons and containers  
 Paper bags  
 Paper making  
 Pencils, penholders, chalks, crayons  
 Other

## CLASS 13. RUBBER

Rubber goods (including tyres made)  
 Tyre retreading and repairing

## CLASS 14. MUSICAL INSTRUMENTS

Gramophones and gramophone records  
 Pianos, piano-players, organs  
 Other

## CLASS 15. MISCELLANEOUS PRODUCTS

Linoleum, leather-cloth, oil-cloth, etc.  
 Bone, horn, ivory, and shell  
 Plastic moulding and products  
 Brooms and brushes  
 Optical instruments and appliances  
 Surgical and other scientific instruments and appliances  
 Photographic material (including developing and printing)  
 Toys, games and sports requisites  
 Artificial flowers  
 Other

## CLASS 16. HEAT, LIGHT AND POWER

Electric light and power—  
     Government  
     Local authority  
     Other  
 Gas works—  
     Government  
     Local authority  
     Other

## HISTORICAL REVIEW

While secondary industry in Western Australia has grown considerably since 1900 the greatest advance both in the number and the size of factories operating has occurred since 1945. One of the factors contributing to this growth has been the provision of adequate power in the south-western portion of the State by the expansion of electricity supplies provided by generating stations linked in a grid system.

In 1900 there were 632 factories operating in Western Australia. By 1910 the number had risen to 822 and by 1920 to 998. Progress during the first World War was comparatively slow, mainly because the more advanced manufacturing facilities already existing in other States were better suited to rapid development. During the decade 1921-1930, however, efforts were made to foster Western Australian secondary industry and considerable success was achieved during the latter years of this period, the number of factories increasing from 1,170 in 1926 to 1,466 in 1930. Although some decline occurred in the depression years of 1930 to 1933, there were 1,658 factories in operation in 1935 and by 1940 the number had reached 2,129.

No immediate stimulus to the State's manufacturing activity followed the outbreak of the second World War, but the more direct threat to Australia which resulted from the fall of Singapore called for a total use of industrial potential, and from 1942 onwards an increasing volume of war contracts was placed in Western Australia. The greatest demand was for processed foodstuffs but other forms of war production which were especially developed included munitions manufacture, shipbuilding (principally of wooden coastal craft) and marine engineering. Although fewer factories operated because of the decline in those classes of production which were purely for civilian purposes, employment and output increased substantially.

Production which had developed largely to meet the demands of the armed services declined sharply at the conclusion of the war and this was reflected particularly in the decreased manufacture of processed foodstuffs, the full production of which considerably exceeded civilian requirements. Secondary industry as a whole benefited greatly, however, from the engineering skills and equipment acquired in wartime activities and their transfer

to civilian uses facilitated the expansion of the metal industries in the State and influenced the production of small to medium-sized machine tools and the establishment of a factory producing several types of tractors and farm machinery.

Such advances enlarged the scope of Western Australian secondary industry and by 1967-68 the number of factories had increased to 5,404. Net production per head of population, however, still remains higher in all the other States except Queensland. Manufacturing net production per head of mean population in each of the States and in Australia as a whole during 1967-68 was as follows: New South Wales, \$720; Victoria, \$725; Queensland, \$383; South Australia, \$565; Western Australia, \$435; Tasmania, \$522; and Australia, \$623.

The average number of persons employed in Western Australian factories from 1900 to 1968 is given in the table below and in more detail in the *Statistical Summary from 1829* following Chapter X.

The large increase between 1944-45 and 1949-50 was due in part to the establishment of many smaller types of factory, such as motor-repair workshops, dry-cleaning works and bakeries, resulting from the return to civilian life of service personnel and from unusually large population gains by natural increase and from immigration. This high level of population increase was maintained in the following five years and in 1954-55 average factory employment reached 49,314. In 1955-56 the number of persons engaged in factories exceeded 50,000 for the first time but then declined in each of the three succeeding years and in 1958-59 had fallen to 48,417. An improvement in 1959-60, when the average for the year rose to 49,651, was maintained over the next eight years and by 1967-68 employment in factories had risen to 67,335. The average number employed in Western Australian factories is exceeded by all Australian States except Tasmania.

#### SELECTED ITEMS OF FACTORY ACTIVITY

Year	Number of factories	Persons employed (a)			Book values of—		Engines and electric motors used to drive machinery (c)	Net production (d)
		Males	Females	Total	Land and buildings (b)	Plant and machinery (b)		
1900	632	10,261	905	11,166	\$'000 2,409	\$'000 2,506	rated hp 7,270	\$'000 (e) 7,270
1905	777	11,829	1,652	13,481	3,579	3,740	11,151	(e) 11,151
1910	822	12,404	2,490	14,894	3,646	3,879	11,378	5,472
1915	983	13,453	2,429	15,882	5,271	5,467	21,997	6,468
1920	998	14,311	2,631	16,942	7,128	6,822	26,481	9,708
1925-26 (f)	1,170	17,393	3,274	20,667	9,710	10,962	37,631	19,222
1929-30	1,466	15,921	3,722	19,643	11,246	12,182	37,754	14,976
1934-35	1,658	14,248	3,521	17,769	11,347	11,527	42,520	12,570
1939-40	2,129	18,331	4,636	22,967	13,727	15,917	66,925	18,055
1944-45	1,931	22,404	6,742	29,146	15,308	16,508	80,667	25,920
1949-50	3,023	33,711	7,022	40,733	22,110	22,914	120 380	52,088
1954-55	3,727	42,294	7,020	49,314	60,460	109,916	204,848	121,912
1959-60	4,279	42,957	6,694	49,651	87,146	128,450	261,660	172,747
1963-64	4,609	48,163	7,542	55,705	118,813	155,514	327,425	230,511
1964-65	4,734	50,065	8,032	58,097	131,739	163,526	345,586	260,637
1965-66	4,906	51,464	8,818	60,282	151,047	197,210	371,888	288,803
1966-67	5,167	53,981	9,776	63,757	170,308	250,858	397 513	335,788
1967-68	5,404	56,835	10,500	67,335	198,640	296,659	485,644	388,257

(a) Average number employed over the whole year; includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (b) Includes estimated value of rented premises and plant. (c) Excludes engines used in electricity generating stations and motors driven by electricity of own generation. (d) See *Explanatory Notes and Definitions* on pages 398-9. (e) Figures not available. (f) Period of 18 months ended 30 June 1926.

Several relatively large concerns began to operate during the post-war years. Sharp rises in the total horsepower of engines used to drive machinery are indicative of this growth in the number of highly-mechanised works. Increases in net production and the enhanced values of land and building and of plant and machinery are also significant, but when considering these figures allowances should be made for price changes which occurred during the period.

In recent years the scope of Western Australian secondary industry has been enlarged by the introduction of large and medium sized factories engaged in such activities as oil refining, steel rolling, titanium dioxide extraction, paper production, alumina refining, cotton ginning, rubber tyre manufacture, blast furnace operations, iron ore pelletising, explosives manufacture and ammonium nitrate production.

## GENERAL SUMMARY

During the ten years from 1958-59 to 1967-68 the number of factories in Western Australia increased by 31 per cent from 4,125 to 5,404 and the average number of persons employed in factories increased by 39 per cent from 48,417 to 67,335. By comparison, during the same period the total number of factories in Australia rose by 14 per cent from 55,098 to 62,954 and the average number of persons in factory employment increased from 1,090,863 to 1,331,147, a gain of 22 per cent.

## NUMBER OF FACTORIES—AUSTRALIA

States and Territories	1963-64	1964-65	1965-66	1966-67	1967-68
New South Wales	23,642	24,368	24,531	24,849	24,884
Victoria	17,597	17,925	17,980	18,053	18,030
Queensland	5,955	5,962	6,010	6,013	6,154
South Australia	5,826	5,887	6,065	6,222	6,255
Western Australia	4,609	4,734	4,906	5,167	5,404
Tasmania	1,746	1,805	1,792	1,771	1,797
Northern Territory	n.a.	174	185	187	188
Australian Capital Territory	n.a.	187	217	238	242
AUSTRALIA	(a) 59,375	61,042	61,686	62,500	62,954

n.a. denotes 'not available'.

(a) Excludes Northern Territory and Australian Capital Territory.

In the following table factory activity in Western Australia during 1967-68 is compared with that of the other Australian States and Territories. The greatest number of factories is located in New South Wales which also produced the highest value of output and net production. Victoria ranks second in terms of output followed by Queensland and South Australia. Western Australian factory output exceeded only that of Tasmania, Northern Territory and the Australian Capital Territory.

## PRINCIPAL ITEMS OF FACTORY STATISTICS—AUSTRALIA, 1967-68

States and Territories	Number of factories	Persons employed	Salaries and wages	Value of—				
				Materials used (a)	Power, fuel and light used (b)	Net production (c)	Output (c)	Land, buildings, plant and machinery (d)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
New South Wales	24,884	531,185	1,498,067	3,712,895	252,639	3,130,982	7,096,517	3,828,140
Victoria	18,030	449,945	1,244,216	2,813,424	143,086	2,394,801	5,351,311	2,685,255
Queensland	6,154	120,852	305,955	1,072,543	51,871	657,853	1,782,267	946,728
South Australia	6,255	121,417	330,060	788,018	56,205	631,890	1,476,113	813,610
Western Australia	5,404	67,335	175,100	465,554	33,561	388,257	887,372	495,299
Tasmania	1,797	35,178	96,236	227,573	19,485	198,018	445,076	448,047
Northern Territory	188	1,519	4,983	7,995	1,157	9,680	18,831	14,846
Australian Capital Territory	242	3,716	11,285	16,382	830	19,372	36,583	33,432
AUSTRALIA	62,954	1,331,147	3,665,902	9,104,383	558,834	7,430,853	17,094,070	9,265,359

(a) Includes containers and repairs to buildings, plant, etc. (b) Includes lubricating oil and water. (c) See *Explanatory Notes and Definitions* on pages 398-9. (d) Book values at end of year; includes estimated value of rented premises and plant.

## Composition of Secondary Industry

In common with the majority of Australian States the main classes of secondary industry in Western Australia, measured by the value of net production, are Class 3—Chemicals, dyes, explosives, paints, oils, grease: Class 4—Industrial metals, machines,



implements and conveyances; and Class 9—Food, drink and tobacco. This is shown in the following table which gives, for each of the sixteen classes, the principal statistics of factory activity for 1967-68.

PRINCIPAL ITEMS ACCORDING TO CLASS OF INDUSTRY, 1967-68

Class of industry	Number of factories	Persons employed	Salaries and wages	Value of—				
				Materials used (a)	Power, fuel and light used (b)	Net production (c)	Output (c)	Land, buildings, plant and machinery (d)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1. Treatment of non-metalliferous mine and quarry products .....	173	2,129	6,202	18,342	1,883	18,900	39,125	18,231
2. Bricks, pottery, glass, etc. ....	47	1,796	5,334	3,849	2,034	11,284	17,168	9,713
3. Chemicals, dyes, explosives, paints, oils, grease .....	92	3,209	10,524	98,854	5,360	47,426	151,640	63,055
4. Industrial metals, machines, implements, conveyances .....	2,824	31,694	85,426	158,212	7,153	159,303	324,668	196,152
5. Precious metals, jewellery, plate ....	94	288	529	392	80	1,207	1,680	994
6. Textiles and textile goods (inclusive of knitted goods) .....	37	758	1,560	4,959	161	3,015	8,134	3,222
7. Skins and leather (not clothing or footwear) .....	24	549	1,296	1,653	152	2,230	4,036	1,590
8. Clothing (except knitted) .....	327	3,015	4,340	4,467	198	7,523	12,187	6,152
9. Food, drink and tobacco .....	629	9,340	22,575	111,632	3,162	53,565	168,359	56,872
10. Sawmilling, woodworking and basketware .....	479	6,084	15,402	29,298	947	30,003	60,248	15,903
11. Furniture of wood, bedding, etc. ....	218	1,840	3,886	8,903	84	7,651	16,638	5,022
12. Paper, stationery, printing, book-binding, etc. ....	167	3,722	10,044	15,775	701	19,709	36,186	25,139
13. Rubber .....	49	508	1,352	3,254	147	2,866	6,267	2,696
14. Musical instruments .....	7	29	55	14	1	83	98	99
15. Miscellaneous products .....	145	1,010	2,042	3,423	116	4,273	7,811	4,628
Total, Classes 1 to 15 .....	5,312	65,971	170,567	463,028	22,180	369,037	854,246	409,468
16. Heat, light and power .....	92	1,364	4,534	2,526	11,381	19,220	33,126	85,832
TOTAL, ALL CLASSES .....	5,404	67,335	175,100	465,554	33,561	388,257	887,372	495,300

(a) Includes containers and repairs to buildings, plant, etc. (b) Includes lubricating oil and water. (c) See Explanatory Notes and Definitions on pages 398-9. (d) Book values at end of year; includes estimated value of rented premises and plant.

### Location of Secondary Industry

Two-thirds of the State's factories, including those situated in the rapidly developing complex at Kwinana, are located in the Perth Statistical Division, which contains the greatest population, both in number and density. The adjoining South-West Statistical Division ranks next to the Perth Division in total population and number of factories.

PRINCIPAL ITEMS ACCORDING TO STATISTICAL DIVISIONS, 1967-68

Statistical Division	Number of factories	Persons employed	Salaries and wages	Value of—				
				Materials used (a)	Power, fuel and light used (b)	Net production (c)	Output (c)	Land, buildings, plant and machinery (d)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Perth .....	3,647	55,564	146,415	379,148	21,535	315,601	716,283	351,843
South-West .....	527	4,996	12,332	27,467	5,986	35,685	69,137	63,086
Southern Agricultural .....	299	1,985	4,335	14,397	489	9,600	24,486	10,448
Central Agricultural .....	346	1,691	3,560	8,718	1,569	7,131	17,417	5,590
Northern Agricultural .....	255	1,296	2,937	18,722	573	6,947	26,242	6,859
Eastern Goldfields .....	187	954	2,204	4,780	1,562	4,863	11,206	9,365
Central .....	12	40	110	121	177	255	553	427
North-West .....	37	200	543	1,414	150	1,091	2,655	1,397
Pilbara .....	50	279	1,447	5,706	955	4,166	10,827	38,324
Kimberley .....	44	330	1,217	5,082	567	2,917	8,567	7,961
WESTERN AUSTRALIA .....	5,404	67,335	175,100	465,554	33,561	388,257	887,372	495,300

(a) Includes containers and repairs to buildings, plant, etc. (b) Includes lubricating oil and water. (c) See Explanatory Notes and Definitions on pages 398-9. (d) Book values at end of year; includes estimated value of rented premises and plant.

The Perth and South-West Divisions together contain approximately three-quarters of the total population of the State. Other factors influencing the concentration of manufacturing industry in the area are the easier availability of raw materials and the provision of adequate power and fuel supplies and transport facilities. Electric power is distributed over most of the area through a grid system established by the State Electricity Commission, and a map showing the distribution of supplies by the Commission as at 30 June 1966 appeared in the *Western Australian Year Book*, No. 6—1967. The only coal deposits in the State at present being worked are in the South-West Division near Collie, some 120 miles to the south of Perth. These Divisions also contain well-developed road and railway systems, the State's principal port at Fremantle and other ports at Bunbury and Busselton.

Reference to manufacturing activity in the several Statistical Divisions of the State is also made in the section *Geographical Distribution of Industry* which appears at the beginning of this Chapter. The boundaries of each Statistical Division are shown on the map of the State following the Index. Details of the individual local government areas of which each Statistical Division is composed are given in a list preceding the *Index*.

### Number of Factories and Persons Employed

The major increase in both the number of factories and employment in the ten years to 1967-68 has occurred in Class 4—Industrial metals, machines, implements and conveyances. Other large increases in employment have also occurred in Class 9—Food, drink and tobacco, and Class 12—Paper, stationery, printing, bookbinding, etc.

Variations in the number of Western Australian factories in each class of secondary industry over the five-year period 1963-64 to 1967-68 are shown in the following table.

NUMBER OF FACTORIES ACCORDING TO CLASS OF INDUSTRY

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products	149	148	156	157	173
2. Bricks, pottery, glass, etc.	49	48	49	47	47
3. Chemicals, dyes, explosives, paints, oils, grease	76	80	87	89	92
4. Industrial metals, machines, implements, conveyances	2,160	2,305	2,449	2,653	2,824
5. Precious metals, jewellery, plate	86	90	93	91	94
6. Textiles and textile goods (inclusive of knitted goods)	42	36	34	35	37
7. Skins and leather (not clothing or footwear)	23	24	24	23	24
8. Clothing (except knitted)	368	359	338	333	327
9. Food, drink and tobacco	621	626	623	633	629
10. Sawmilling, woodworking and basketware	454	443	449	469	479
11. Furniture of wood, bedding, etc.	181	178	190	196	218
12. Paper, stationery, printing, bookbinding, etc.	148	155	160	170	167
13. Rubber	58	61	60	56	49
14. Musical instruments	7	7	6	6	7
15. Miscellaneous products	90	86	100	123	145
Total, Classes 1 to 15	4,512	4,646	4,818	5,081	5,312
16. Heat, light and power	97	88	88	86	92
TOTAL, ALL CLASSES	4,609	4,734	4,906	5,167	5,404

The following table shows the number of factories classified according to the number of persons employed and the total employment in each size group of factories. Although there were 5,404 factories operating in 1967-68 only eighty-eight, or less than 2 per cent, had an average employment in excess of 100 persons, while 4,166 factories, or slightly more than 77 per cent of the total, employed ten persons or less.

In 1967-68 the six largest factories were responsible for over 9 per cent of total factory employment. By contrast, however, the 2,558 factories employing under four persons, while constituting over 47 per cent of the total number of factories in the State, accounted for less than 7 per cent of employment, including a considerable number of working proprietors.

# FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED

Year	Factories employing on the average (a)							
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	Total
NUMBER OF FACTORIES								
1963-64 ....	2,298	1,325	447	342	115	79	3	4,609
1964-65 ....	2,308	1,394	460	368	124	75	5	4,734
1965-66 ....	2,421	1,397	494	381	123	84	6	4,906
1966-67 ....	2,503	1,505	525	411	134	84	5	5,167
1967-68 ....	2,558	1,608	559	440	151	82	6	5,404
PERSONS EMPLOYED (a)								
1963-64 ....	4,222	8,001	6,473	10,737	7,968	14,806	4,656	56,863
1964-65 ....	4,173	8,405	6,607	11,485	8,796	13,958	5,785	59,209
1965-66 ....	4,440	8,495	7,092	11,930	8,525	15,036	6,076	61,594
1966-67 ....	4,643	9,126	7,659	13,002	9,325	15,501	5,659	64,915
1967-68 ....	4,796	9,686	7,999	13,616	10,711	15,606	6,376	68,790

(a) Average over period of operation; includes working proprietors.

The size structure of Western Australian factories, and the employment in those factories, is compared with that of the other Australian States and Territories in the following table.

Of the 283 factories in Australia employing over 500 persons on the average over the period of operation, 124 were located in New South Wales and 97 in Victoria. The number in Western Australia was six.

More persons were engaged in factories in Western Australia employing 101 to 500 workers than any other size category.

## FACTORIES AND PERSONS EMPLOYED—AUSTRALIA, 1967-68

States and Territories	Factories employing on the average (a)							
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	Total
NUMBER OF FACTORIES								
New South Wales	10,363	7,615	3,033	2,217	829	703	124	24,884
Victoria	5,896	5,919	2,564	1,994	825	735	97	18,030
Queensland	2,103	2,207	831	569	229	196	19	6,154
South Australia	3,068	1,679	681	459	193	148	27	6,255
Western Australia	2,558	1,608	559	440	151	82	6	5,404
Tasmania	728	592	225	156	44	43	9	1,797
Northern Territory	67	83	25	10	3			188
Australian Capital Territory	72	92	46	23	5	3	1	242
AUSTRALIA	24,855	19,795	7,964	5,868	2,279	1,910	283	62,954
PERSONS EMPLOYED (a)								
New South Wales	19,155	47,124	44,256	69,720	57,837	140,639	155,005	533,736
Victoria	11,624	36,884	37,579	62,871	57,913	148,534	97,456	452,861
Queensland	4,274	13,541	12,208	17,715	15,937	40,649	17,120	121,444
South Australia	5,483	10,251	9,960	14,452	13,550	29,762	38,613	122,071
Western Australia	4,796	9,686	7,999	13,616	10,711	15,606	6,376	68,790
Tasmania	1,380	3,597	3,248	5,004	3,183	7,874	11,150	35,436
Northern Territory	123	509	345	356	201			1,534
Australian Capital Territory	160	531	678	719	348	589	708	3,733
AUSTRALIA	46,995	122,123	116,273	184,453	159,680	383,653	326,428	1,339,605

(a) Average over period of operation; includes working proprietors.

FACTORIES ACCORDING TO CLASS OF INDUSTRY AND PERSONS EMPLOYED, 1967-68

Class of industry	Factories employing on the average (a)								Total
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons		
NUMBER OF FACTORIES									
1. Treatment of non-metalliferous mine and quarry products .....	54	76	21	16	3	3	....	173	
2. Bricks, pottery, glass, etc. ....	11	11	5	9	7	4	....	47	
3. Chemicals, dyes, explosives, paints, oils, grease .....	28	26	9	13	7	8	1	92	
4. Industrial metals, machines, implements, conveyances .....	1,493	802	258	176	54	38	3	2,824	
5. Precious metals, jewellery, plate .....	74	17	1	2	....	....	....	94	
6. Textiles and textile goods (inclusive of knitted goods) .....	11	11	5	6	3	1	....	37	
7. Skins and leather (not clothing or footwear) ....	6	4	5	6	2	1	....	24	
8. Clothing (except knitted) .....	170	93	24	25	14	1	....	327	
9. Food, drink and tobacco .....	273	173	80	65	26	11	1	629	
10. Sawmilling, woodworking and basketware ....	159	180	61	57	17	5	....	479	
11. Furniture of wood, bedding, etc. ....	100	66	29	19	3	1	....	218	
12. Paper, stationery, printing, bookbinding, etc. ....	35	57	34	27	9	4	1	167	
13. Rubber .....	32	8	2	5	1	1	....	49	
14. Musical instruments .....	4	3	....	....	....	....	....	7	
15. Miscellaneous products .....	59	58	17	8	3	....	....	145	
Total, Classes 1 to 15 .....	2,509	1,585	551	434	149	78	6	5,312	
16. Heat, light and power .....	49	23	8	6	2	4	....	92	
TOTAL, ALL CLASSES .....	2,558	1,608	559	440	151	82	6	5,404	
PERSONS EMPLOYED (a)									
1. Treatment of non-metalliferous mine and quarry products .....	105	444	294	525	202	584	....	2,154	
2. Bricks, pottery, glass, etc. ....	21	74	83	286	531	798	....	1,793	
3. Chemicals, dyes, explosives, paints, oils, grease .....	48	185	124	387	453	1,220	835	3,252	
4. Industrial metals, machines, implements, conveyances .....	2,831	4,759	3,674	5,349	3,769	7,242	4,442	32,066	
5. Precious metals, jewellery, plate .....	114	107	15	53	....	....	....	289	
6. Textiles and textile goods (inclusive of knitted goods) .....	17	66	83	167	238	189	....	760	
7. Skins and leather (not clothing or footwear) ....	11	21	79	206	124	111	....	552	
8. Clothing (except knitted) .....	295	559	340	731	1,070	120	....	3,115	
9. Food, drink and tobacco .....	515	1,072	1,164	2,102	1,781	2,765	538	9,937	
10. Sawmilling, woodworking and basketware ....	316	1,104	893	1,876	1,247	790	....	6,226	
11. Furniture of wood, bedding, etc. ....	199	395	391	535	220	130	....	1,870	
12. Paper, stationery, printing, bookbinding, etc. ....	68	382	489	849	677	769	561	3,795	
13. Rubber .....	71	39	25	184	54	137	....	510	
14. Musical instruments .....	7	22	....	....	....	....	....	29	
15. Miscellaneous products .....	109	329	233	207	176	....	....	1,054	
Total, Classes 1 to 15 .....	4,727	9,558	7,887	13,457	10,542	14,855	6,376	67,402	
16. Heat, light and power .....	69	128	112	159	169	751	....	1,388	
TOTAL, ALL CLASSES .....	4,796	9,686	7,999	13,616	10,711	15,606	6,376	68,790	

(a) Average over period of operation; includes working proprietors.

The following table shows employment in Western Australian factories, classified according to class of industry. The largest volume of employment is provided in Class 4—Industrial metals, machines, implements and conveyances. In 1967-68 the industries which comprise this class employed an average over the whole year of 31,694 persons, including 2,820 in government workshops engaged in constructing and repairing railway rolling stock. The next largest employer of labour was the class Food, drink and tobacco with 9,340 persons, of whom 3,004 were engaged in meat and fish preserving and 1,395 in bakeries. In the class Sawmilling, woodworking and basketware, 3,392 persons were employed in sawmills and 1,922 in joinery works. Paper, stationery, printing, book-binding, etc. accounted for 3,722 persons, of whom 1,503 were employed in general printing and 945 in the printing of newspapers and periodicals. Persons employed in the manufacture of clothing numbered 3,015. In chemical fertiliser works, within the class Chemicals, dyes, explosives, paints, oils, grease, 1,010 workers were employed.

## PERSONS EMPLOYED ACCORDING TO CLASS OF INDUSTRY

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68		
					Males	Females	Persons
1. Treatment of non-metalliferous mine and quarry products .....	1,786	1,916	1,949	2,023	1,994	135	2,129
2. Bricks, pottery, glass, etc. ....	1,580	1,556	1,592	1,593	1,632	164	1,796
3. Chemicals, dyes, explosives, paints, oils, grease .....	2,761	2,920	2,923	3,003	2,900	309	3,209
4. Industrial metals, machines, implements, conveyances .....	24,924	26,403	27,722	29,593	29,495	2,199	31,694
5. Precious metals, jewellery, plate .....	229	239	252	275	250	38	288
6. Textiles and textile goods (inclusive of knitted goods) .....	882	828	857	824	368	390	758
7. Skins and leather (not clothing or footwear) .....	590	587	585	555	402	147	549
8. Clothing (except knitted) .....	2,984	3,047	3,063	3,162	767	2,248	3,015
9. Food, drink and tobacco .....	7,793	7,957	8,163	8,919	6,515	2,825	9,340
10. Sawmilling, woodworking and basketware .....	5,403	5,567	5,732	5,814	5,731	353	6,084
11. Furniture of wood, bedding, etc. ....	1,386	1,503	1,552	1,654	1,495	345	1,840
12. Paper, stationery, printing, bookbinding, etc. ....	3,105	3,200	3,371	3,657	2,838	884	3,722
13. Rubber .....	413	526	557	499	409	99	508
14. Musical instruments .....	34	29	23	26	29	.....	29
15. Miscellaneous products .....	670	666	732	912	666	344	1,010
Total, Classes 1 to 15 .....	54,540	56,944	59,073	62,509	55,491	10,480	65,971
16. Heat, light and power .....	1,165	1,153	1,209	1,248	1,344	20	1,364
TOTAL, ALL CLASSES .....	55,705	58,097	60,282	63,757	56,835	10,500	67,335

In 1945, towards the end of the war, the ratio of male to female employment was 3·3 : 1. Within the next five years it increased to 4·6 : 1 and by June 1955, it had risen to 6·1 : 1. It then rose slowly to 6·4 : 1 in June 1961, but has since declined, the ratio in June 1968, being slightly more than 5·3 : 1.

## FACTORY EMPLOYEES CLASSIFIED ACCORDING TO AGE

Month of June—	Males				Females			
	Under 16 years	16 years and under 21	21 years and over	Total	Under 16 years	16 years and under 21	21 years and over	Total
NUMBER								
1964 .....	919	6,746	38,048	45,713	397	2,613	4,377	7,387
1965 .....	962	7,185	39,499	47,646	409	2,855	4,718	7,982
1966 .....	944	7,508	40,372	48,824	430	2,951	5,445	8,826
1967 .....	792	7,804	42,972	51,568	307	2,845	6,459	9,611
1968 .....	767	8,038	46,097	54,902	331	2,784	7,229	10,344
PERCENTAGE								
1964 .....	2·01	14·76	83·23	100·00	5·37	35·37	59·25	100·00
1965 .....	2·02	15·08	82·90	100·00	5·12	35·77	59·11	100·00
1966 .....	1·93	15·38	82·69	100·00	4·87	33·44	61·69	100·00
1967 .....	1·54	15·13	83·33	100·00	3·19	29·60	67·20	100·00
1968 .....	1·40	14·64	83·96	100·00	3·20	26·91	69·89	100·00

The proportion of male employees aged under twenty-one years to total male employment fell consistently between 1945 and 1952. Since then it increased gradually until 1966 when it reached 17·3 per cent, or slightly more than in 1948. In 1968 the proportion had declined to 16·0. The trend in junior female employment followed a somewhat similar pattern apart from the abrupt increase which occurred in the proportion in 1946, immediately after the war. However, this was due to a considerable decrease in the number of adult female employees and not to an increase in the number of juniors. The proportion then fell substantially until 1955 but increased fairly consistently during the next ten years. Since 1966 the proportion of junior females employed has fallen, due mainly to substantial increases in numbers of adult female employees. The changes which have occurred

during the five years from 1964 to 1968 in the age grouping of employees in secondary industry are illustrated in the second table on page 408 where the numbers of males and females in each group are expressed as a percentage of total factory employment for each sex.

### Salaries and Wages

In most classes of secondary industry the average amount of salary and wages paid to both male and female employees has increased each year since 1946-47. In the following table details of total salaries and wages paid in 1967-68 and the averages per employee are shown for each class of industry.

SALARIES AND WAGES PAID ACCORDING TO CLASS OF INDUSTRY, 1967-68  
(Excludes working proprietors and amounts drawn by them)

Class of industry	Total			Average per employee		
	Males	Females	Persons	Males	Females	Persons
	\$'000	\$'000	\$'000	\$	\$	\$
1. Treatment of non-metalliferous mine and quarry products	5,982	220	6,202	3,127	1,708	3,037
2. Bricks, pottery, glass, etc.	5,064	270	5,334	3,134	1,659	2,998
3. Chemicals, dyes, explosives, paints, oils, grease	10,043	481	10,524	3,486	1,562	3,300
4. Industrial metals, machines, implements, conveyances	81,995	3,431	85,426	2,952	1,596	2,854
5. Precious metals, jewellery, plate	482	47	529	2,787	1,336	2,543
6. Textiles and textile goods (inclusive of knitted goods)	1,020	540	1,560	2,898	1,403	2,117
7. Skins and leather (not clothing or footwear)	1,096	200	1,296	2,789	1,377	2,409
8. Clothing (except knitted)	1,243	3,097	4,340	2,400	1,416	1,605
9. Food, drink and tobacco	18,166	4,409	22,575	2,949	1,592	2,528
10. Sawmilling, woodworking and basketware	14,862	540	15,402	2,726	1,560	2,657
11. Furniture of wood, bedding, etc.	3,395	491	3,886	2,600	1,505	2,381
12. Paper, stationery, printing, bookbinding, etc.	8,759	1,286	10,044	3,205	1,479	2,789
13. Rubber	1,212	139	1,352	2,993	1,421	2,687
14. Musical instruments	55	....	55	2,303	....	2,303
15. Miscellaneous products	1,609	433	2,042	2,727	1,320	2,224
Total, Classes 1 to 15	154,983	15,583	170,567	2,964	1,522	2,728
16. Heat, light and power	4,504	30	4,534	3,389	1,482	3,361
TOTAL, ALL CLASSES	159,487	15,613	175,100	2,974	1,522	2,741

The table below shows total salaries and wages paid in each class of industry from 1963-64 to 1967-68.

SALARIES AND WAGES PAID ACCORDING TO CLASS OF INDUSTRY  
(Excludes amounts drawn by working proprietors)  
(\$'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products	3,966	4,472	4,846	5,446	6,202
2. Bricks, pottery, glass, etc.	3,460	3,645	3,919	4,503	5,334
3. Chemicals, dyes, explosives, paints, oils, grease	6,824	7,741	8,398	9,327	10,524
4. Industrial metals, machines, implements, conveyances	49,141	55,827	63,536	73,563	85,426
5. Precious metals, jewellery, plate	310	339	368	466	529
6. Textiles and textile goods (inclusive of knitted goods)	1,468	1,398	1,561	1,600	1,560
7. Skins and leather (not clothing or footwear)	1,128	1,204	1,286	1,219	1,296
8. Clothing (except knitted)	3,369	3,639	3,826	4,299	4,340
9. Food, drink and tobacco	15,065	15,916	17,447	20,047	22,575
10. Sawmilling, woodworking and basketware	10,268	11,130	12,492	13,692	15,402
11. Furniture of wood, bedding, etc.	2,213	2,550	2,829	3,245	3,886
12. Paper, stationery, printing, bookbinding, etc.	6,412	6,798	7,619	9,017	10,044
13. Rubber	767	1,088	1,188	1,288	1,352
14. Musical instruments	53	50	45	52	55
15. Miscellaneous products	1,040	1,091	1,286	1,774	2,042
Total, Classes 1 to 15	105,481	116,887	130,643	149,537	170,567
16. Heat, light and power	3,034	3,090	3,528	4,060	4,534
TOTAL, ALL CLASSES	108,515	119,978	134,171	153,597	175,100

### Materials Used

The cost of goods consumed in the process of production in each class of industry, for each of the years 1963-64 to 1967-68, as shown in the following table, represents the combined cost of materials, containers, tools replaced and repairs to plant and buildings. The figures exclude fuel, power, light, lubricating oil and water.

MATERIALS USED CLASSIFIED ACCORDING TO CLASS OF INDUSTRY  
(\$'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products	8,740	10,131	11,936	13,342	18,342
2. Bricks, pottery, glass, etc.	2,087	2,334	2,625	3,165	3,849
3. Chemicals, dyes, explosives, paints, oils, grease	75,510	76,920	83,476	87,749	98,854
4. Industrial metals, machines, implements, conveyances	85,677	100,247	114,566	130,862	158,212
5. Precious metals, jewellery, plate	194	233	261	336	392
6. Textiles and textile goods (inclusive of knitted goods)	7,724	5,577	5,934	5,711	4,959
7. Skins and leather (not clothing or footwear)	1,543	1,702	2,098	1,984	1,653
8. Clothing (except knitted)	4,119	4,100	4,354	4,657	4,467
9. Food, drink and tobacco	76,138	83,937	88,180	95,558	111,632
10. Sawmilling, woodworking and basketware	18,572	20,483	22,743	25,699	29,298
11. Furniture of wood, bedding, etc.	5,480	6,537	6,747	7,567	8,903
12. Paper, stationery, printing, bookbinding, etc.	10,031	11,065	12,400	14,715	15,775
13. Rubber	1,446	2,887	3,347	2,891	3,254
14. Musical instruments	18	12	12	14	14
15. Miscellaneous products	1,725	1,795	1,994	2,839	3,423
Total, Classes 1 to 15	299,002	327,960	360,673	397,088	463,028
16. Heat, light and power	1,795	1,780	1,962	2,318	2,526
TOTAL, ALL CLASSES	300,798	329,740	362,634	399,406	465,554

### Motive Power

Electricity is the most economical and convenient source of power in the principal manufacturing areas of the State and most factories have plants designed for its use. This position has become more pronounced as the installation of new major generating stations has extended the area in which adequate electric power is available. Electric motors are consequently the main source of motive power in factories. Oil engines are next in order of total horsepower produced and are still used in those country districts which are not yet supplied with power from the central generating stations.

The following table shows the various types of motive power used during the five years from 1963-64 to 1967-68.

RATED HORSEPOWER OF ENGINES (a) EMPLOYED TO DRIVE MACHINERY

Year	Steam		Internal combustion (b)			Motors driven by—		Total (c)
	Recipro-cating	Turbine	Gas	Light oil	Heavy oil	Electricity purchased	Electricity of own generation	
1963-64	9,734	13,559	3,395	23,088	4,205	273,444	7,470	327,425
1964-65	9,680	13,559	3,395	22,300	5,883	290,769	8,651	345,586
1965-66	8,230	13,599		32,843		317,216	7,941	371,888
1966-67	8,174	13,604		29,038		346,697	8,982	397,513
1967-68	7,681	19,728		31,095		427,140	12,428	485,644

(a) Excludes engines held in reserve or idle and engines used in electricity generating stations. collected after 1964-65.

(b) Separate details not collected after 1964-65.

(c) Excludes horsepower of motors driven by electricity of own generation.

### Fuel Consumed

The quantity and cost of fuels used by secondary industry are shown in the following table. The fuels consumed are used for heating purposes in foundries, brick kilns and bakers' ovens as well as for steam generation, lighting and the operation of engines.

## POWER, FUEL AND LIGHT USED IN FACTORIES (a)

Year	Coal		Coke		Wood		Fuel oil		Elec- tricity	Other (gas, tar fuel, etc.)
	tons	\$'000	tons	\$'000	tons	\$'000	'000 gal	\$'000	\$'000	\$'000
1963-64 ....	670,025	5,173	13,390	359	226,337	745	118,139	9,059	5,658	1,452
1964-65 ....	732,424	5,709	12,394	349	211,554	682	132,347	9,701	6,352	1,826
1965-66 ....	827,399	6,041	12,247	393	190,264	600	133,929	9,732	6,861	2,096
1966-67 ....	857,702	5,729	11,789	388	176,871	577	159,877	11,094	7,952	2,439
1967-68 ....	911,520	5,540	22,965	632	157,672	582	189,613	13,035	8,935	2,868

(a) Excludes coal, coke and fuel oil used in gas works as materials in gas making, electricity generated and used in generating stations, and gas produced and used in own works.

## Value of Output and Net Production

The basis on which each of these values is computed is defined in the section *Explanatory Notes and Definitions* on pages 398-9.

VALUE OF OUTPUT ACCORDING TO CLASS OF INDUSTRY  
(\$'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products .....	20,188	23,402	26,185	30,712	39,125
2. Bricks, pottery, glass, etc. ....	10,180	10,912	11,488	13,487	17,168
3. Chemicals, dyes, explosives, paints, oils, grease .....	113,829	119,292	127,638	135,646	151,640
4. Industrial metals, machines, implements, conveyances .....	173,906	204,381	232,532	272,518	324,668
5. Precious metals, jewellery, plate .....	934	1,041	1,155	1,428	1,680
6. Textiles and textile goods (inclusive of knitted goods) .....	10,292	7,919	9,115	8,782	8,134
7. Skins and leather (not clothing or footwear) .....	3,545	3,901	4,285	4,117	4,036
8. Clothing (except knitted) .....	10,044	10,437	11,300	12,136	12,187
9. Food, drink and tobacco .....	113,316	123,432	132,750	146,967	168,359
10. Sawmilling, woodworking and basketware .....	37,714	42,359	46,757	52,217	60,248
11. Furniture of wood, bedding, etc. ....	9,768	11,520	12,434	13,929	16,638
12. Paper, stationery, printing, bookbinding, etc. ....	23,664	25,716	27,537	32,269	36,186
13. Rubber .....	3,214	5,088	5,906	5,559	6,267
14. Musical instruments .....	96	88	77	89	98
15. Miscellaneous products .....	3,701	3,956	4,559	6,377	7,811
Total, Classes 1 to 15 .....	534,391	593,442	653,719	736,234	854,246
16. Heat, light and power .....	20,667	22,979	25,032	28,991	33,126
TOTAL, ALL CLASSES .....	555,058	616,422	678,751	765,224	887,372

VALUE OF NET PRODUCTION ACCORDING TO CLASS OF INDUSTRY  
(\$'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products .....	10,230	11,774	12,727	15,691	18,900
2. Bricks, pottery, glass, etc. ....	6,736	7,128	7,446	8,728	11,284
3. Chemicals, dyes, explosives, paints, oils, grease .....	33,129	36,966	38,913	42,601	47,426
4. Industrial metals, machines, implements, conveyances .....	84,465	99,673	112,922	135,985	159,303
5. Precious metals, jewellery, plate .....	715	773	854	1,016	1,207
6. Textiles and textile goods (inclusive of knitted goods) .....	2,459	2,242	3,065	2,923	3,015
7. Skins and leather (not clothing or footwear) .....	1,863	2,048	2,034	1,982	2,230
8. Clothing (except knitted) .....	5,758	6,164	6,766	7,296	7,523
9. Food, drink and tobacco .....	34,730	36,969	41,936	48,615	53,565
10. Sawmilling, woodworking and basketware .....	18,470	21,114	23,245	25,692	30,003
11. Furniture of wood, bedding, etc. ....	4,233	4,923	5,620	6,289	7,651
12. Paper, stationery, printing, bookbinding, etc. ....	13,355	14,361	14,821	16,793	19,709
13. Rubber .....	1,681	2,033	2,401	2,520	2,866
14. Musical instruments .....	77	75	64	75	83
15. Miscellaneous products .....	1,913	2,093	2,489	3,437	4,273
Total, Classes 1 to 15 .....	219,816	248,355	275,302	319,640	369,037
16. Heat, light and power .....	10,695	12,282	13,501	16,148	19,220
TOTAL, ALL CLASSES .....	230,511	260,637	288,803	335,788	388,257



The annual values of net production per person employed are shown in the table below for each class of industry for the years 1963-64 to 1967-68. Net production per person employed was highest in Class 3—Chemicals, dyes, explosives, paints, oils, grease and lowest in Class 8—Clothing (except knitted).

#### NET PRODUCTION PER PERSON EMPLOYED (a) IN EACH CLASS OF INDUSTRY

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
	\$	\$	\$	\$	\$
1. Treatment of non-metalliferous mine and quarry products ....	5,728	6,145	6,530	7,756	8,877
2. Bricks, pottery, glass, etc. ....	4,264	4,581	4,677	5,479	6,283
3. Chemicals, dyes, explosives, paints, oils, grease ....	11,998	12,659	13,313	14,186	14,779
4. Industrial metals, machines, implements, conveyances ....	3,388	3,775	4,073	4,595	5,026
5. Precious metals, jewellery, plate ....	3,122	3,234	3,388	3,696	4,192
6. Textiles and textile goods (inclusive of knitted goods) ....	2,788	2,708	3,576	3,547	3,977
7. Skins and leather (not clothing or footwear) ....	3,158	3,489	3,477	3,570	4,062
8. Clothing (except knitted) ....	1,930	2,023	2,209	2,307	2,495
9. Food, drink and tobacco ....	4,456	4,646	5,137	5,451	5,735
10. Sawmilling, woodworking and basketware ....	3,418	3,793	4,055	4,419	4,932
11. Furniture of wood, bedding, etc. ....	3,054	3,275	3,621	3,802	4,158
12. Paper, stationery, printing, bookbinding, etc. ....	4,302	4,488	4,397	4,592	5,295
13. Rubber ....	4,070	3,903	4,310	5,049	5,642
14. Musical instruments ....	2,262	2,577	2,769	2,865	2,862
15. Miscellaneous products ....	2,854	3,143	3,401	3,768	4,230
Classes 1 to 15 ....	4,030	4,361	4,660	5,114	5,594
16. Heat, light and power ....	9,180	10,652	11,167	12,939	14,091
ALL CLASSES ....	4,138	4,486	4,791	5,267	5,766

(a) Based on average employment (including working proprietors) over the whole year.

#### Land and Buildings, Plant and Machinery

The book values of the premises and plant used for manufacturing purposes in Western Australia are given in the following table. The amounts shown are depreciated values and do not represent the actual amount of capital invested in the items specified.

#### BOOK VALUES AND RENTALS OF LAND AND BUILDINGS, PLANT AND MACHINERY (\$'000)

Year	Land and buildings				Plant and machinery			
	Owned by user (a)	Rented		Total value	Owned by user (a)	Rented		Total value
		Annual rental	Estimated capital value			Annual rental	Estimated capital value	
1963-64 ....	93,758	1,670	25,055	118,813	152,741	277	2,773	155,514
1964-65 ....	102,946	1,920	28,793	131,739	160,166	336	3,360	163,526
1965-66 ....	119,068	2,132	31,979	151,047	193,611	360	3,599	197,210
1966-67 ....	132,236	2,538	38,072	170,308	246,756	410	4,103	250,858
1967-68 ....	153,936	2,980	44,704	198,640	292,332	433	4,328	296,659

(a) Book values at end of year.

Some indication of the degree of mechanisation in each industrial class can be obtained by relating plant and machinery to persons employed.

In the following table, book values of plant and machinery at 30 June for the three years ended 1968 are shown for each class of industry. For the purpose of calculating average value of plant and machinery per person employed, an average of the values of plant and machinery at the beginning and the end of each year has been divided by the average number of persons employed over the whole of that year, including working proprietors. Within Classes 1-15 the average value of plant and machinery per person employed was highest in Class 3—Chemicals, dyes, explosives, paints, oils, grease and lowest in Class 14—Musical instruments over the three years shown.

**VALUE OF PLANT AND MACHINERY AND AVERAGE VALUE PER PERSON EMPLOYED  
BY CLASS OF INDUSTRY**

Class of industry	Value of plant and machinery at 30 June—			Average value of plant and machinery per person employed (a)		
	1966	1967	1968	1965-66	1966-67	1967-68
	\$'000	\$'000	\$'000	\$	\$	\$
1. Treatment of non-metalliferous mine and quarry products .....	8,794	9,215	9,948	4,382	4,451	4,500
2. Bricks, pottery, glass, etc. ....	3,339	3,881	5,806	2,042	2,266	2,697
3. Chemicals, dyes, explosives, paints, oils, grease ....	42,227	41,123	44,721	15,182	13,878	13,375
4. Industrial metals, machines, implements, conveyances .....	49,814	81,544	110,287	1,554	2,219	3,026
5. Precious metals, jewellery, plate .....	166	169	227	665	610	689
6. Textiles and textile goods (inclusive of knitted goods) .....	1,141	1,197	1,729	1,313	1,419	1,930
7. Skins and leather (not clothing or footwear) ....	461	521	492	753	885	923
8. Clothing (except knitted) ....	1,486	1,578	1,694	475	485	543
9. Food, drink and tobacco ....	20,667	23,439	24,556	2,416	2,473	2,569
10. Sawmilling, woodworking and basketware ....	5,562	7,457	8,228	957	1,120	1,289
11. Furniture of wood, bedding, etc. ....	729	812	1,007	436	466	495
12. Paper, stationery, printing, bookbinding, etc. ....	13,172	14,467	14,623	2,734	3,779	3,908
13. Rubber ....	1,840	1,400	1,286	3,498	3,247	2,643
14. Musical instruments ....	7	7	7	330	269	247
15. Miscellaneous products ....	977	1,233	1,830	1,200	1,211	1,516
Classes 1 to 15 .....	150,383	188,043	226,442	2,376	2,707	3,141
16. Heat, light and power ....	46,827	62,815	70,218	33,078	43,927	48,766
ALL CLASSES .....	197,210	250,858	296,659	2,992	3,514	4,066

(a) See letterpress immediately preceding table.

## INDIVIDUAL INDUSTRIES

The text and tables in this section deal with factory activity in selected industries for each of the five years from 1963-64 to 1967-68. When considering employment, salaries and wages, value of output and net production, reference should be made to the section *Explanatory Notes and Definitions* on pages 398-9. Details of production of selected commodities are given in the table on page 421.

**Lime, Plaster and Plaster Sheets**

Although a decrease has occurred over recent years in the number of establishments engaged in the industry, the 1967-68 value of net production represents an increase of more than 90 per cent over the corresponding figure of ten years ago. Production of fibrous plaster sheets, including small amounts manufactured by factories classified to other industries, has risen from over 1.3 million square yards in 1958-59 to almost 2.0 million square yards in 1967-68, an increase of 45 per cent for the period.

Most of the factories in this industry are situated in the Perth Statistical Division but some smaller plasterboard manufacturers operate in major country centres such as Bunbury, Geraldton, Kalgoorlie and Esperance.

## LIME, PLASTER AND PLASTER SHEETS

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	53	1,690	3,851	460	947	248	2,055	4,292	1,989
1964-65 .....	51	1,775	3,895	457	964	268	2,081	4,482	2,133
1965-66 .....	50	1,851	4,320	458	1,005	286	2,426	4,970	2,259
1966-67 .....	45	1,817	4,203	465	1,090	322	2,413	5,181	2,446
1967-68 .....	48	2,315	4,845	496	1,258	385	2,802	5,952	2,765

(a) Book values at end of year; includes estimated value of rented premises and plant. electricity of own generation.

(c) Includes lubricating oil and water.

(b) Excludes motors driven by

**Cement and Cement Goods (including Asbestos Cement Sheets)**

There are two producers of cement in the State and one producer of asbestos cement products including sheets, pipes and mouldings. A large number of establishments producing other cement products such as concrete bricks, blocks, tiles, pipes, culverts and curbing are also classified to the industry. Ready-mixed concrete is produced in large quantities in country areas as well as in the Perth Statistical Division.

Production data for this industry are limited by confidentiality requirements but details of usage of cement provide some indication of activity in a number of the factories classified to the industry. Cement used, excluding that used in production of asbestos cement sheets, increased from 42,174 tons (\$1.0 million) in 1958-59 to 218,272 tons (\$5.9 million) in 1967-68.

**CEMENT AND CEMENT GOODS (INCLUDING ASBESTOS CEMENT SHEETS)**

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 ....	76	7,101	16,509	1,113	2,568	910	6,129	14,429	7,391
1964-65 ....	76	11,778	21,689	1,246	3,036	1,158	7,262	16,829	8,410
1965-66 ....	84	13,354	22,163	1,256	3,276	1,163	8,618	19,068	9,287
1966-67 ....	91	13,961	22,153	1,314	3,748	1,279	10,109	23,189	11,801
1967-68 ....	104	14,523	21,544	1,414	4,356	1,423	14,722	30,860	14,716

(a) Book values at end of year; includes estimated value of rented premises and plant. (b) Excludes motors driven by electricity of own generation.

(c) Includes lubricating oil and water.

**Bricks, Tiles, Earthenware, Porcelain, etc.**

Western Australia produces more clay bricks *per capita* than any other State and production is increasing. In 1967-68 production was 207.6 million clay bricks, valued at \$8.4 million, an increase in quantity of 27 per cent over the previous year.

Other items of production in the industry include terracotta tiles, earthenware pipes, sanitary ware, refractory bricks and tableware.

**BRICKS, TILES, EARTHENWARE, PORCELAIN, ETC. (a)**

Year	Number of factories	Land, buildings, plant and machinery (b)	Engines and electric motors used (c)	Persons employed	Salaries and wages	Power, fuel and light used (d)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 ....	26	4,465	12,349	1,139	2,520	1,137	1,093	7,065	4,835
1964-65 ....	26	4,525	13,287	1,110	2,669	1,233	1,251	7,708	5,224
1965-66 ....	25	4,926	13,495	1,078	2,727	1,202	1,383	7,987	5,403
1966-67 ....	23	5,374	13,731	1,083	3,079	1,337	1,650	9,378	6,391
1967-68 ....	23	(e)	(e)	(e)	(e)	(e)	(e)	(e)	(e)

(a) Excludes cement bricks and cement roofing tiles; see preceding table.

(b) Book values at end of year; includes estimated value of rented premises and plant.

(c) Excludes motors driven by electricity of own generation.

(d) Includes lubricating oil and water.

(e) Not available for publication.

**Chemical Fertilisers**

Superphosphate production in Western Australia has almost trebled since 1958-59. In that year 0.5 million tons valued at \$13.2 million were produced and this figure has since increased each year to 1967-68 when total production was 1.4 million tons valued at \$38.6 million.

Chemical fertiliser factories are established in country centres as well as the Perth Statistical Division, plants being operated at Picton Junction, Albany, Geraldton and Esperance to meet the requirements of surrounding farm regions.

The industry produces all of the sulphuric acid required for superphosphate manufacture and smaller amounts of hydrochloric, phosphoric and nitric acids. Substantial quantities of mixed chemical fertilisers are also produced.

## CHEMICAL FERTILISERS

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 ....	8	11,398	11,512	977	2,259	364	15,335	21,514	5,814
1964-65 ....	8	14,023	12,207	958	2,438	367	17,024	23,076	5,685
1965-66 ....	8	13,408	13,475	901	2,521	398	21,527	29,272	7,347
1966-67 ....	8	16,016	15,156	929	2,841	455	27,570	36,528	8,503
1967-68 ....	9	25,556	22,229	1,010	3,412	503	32,876	44,560	11,181

(a) Book values at end of year; includes estimated value of rented premises and plant. (b) Excludes motors driven by electricity of own generation.

(c) Includes lubricating oil and water.

## Engineering, Metal Working, Construction of Machines, etc.

Factories engaged in the production of metals and metal products, and in the repair of such products are classified to the class of industry entitled 'Industrial metals, machines, implements and conveyances'. This class includes over 50 per cent of the factories in Western Australia and, in 1967-68, it contributed over \$159 million, or more than 41 per cent of the total value of net production in the State. Goods produced by these factories range from basic metal products such as pig-iron, rolled steel products and wire to electrical consumer goods such as refrigerators. Tractors, agricultural machinery and railway rolling stock are also produced.

Factories in this class are located principally in the Perth Statistical Division, the Kwinana area becoming increasingly important. Almost 90 per cent of the value of net production for the class was produced by factories in this Division.

## ENGINEERING, METAL WORKING, CONSTRUCTION AND REPAIR OF VEHICLES AND MACHINES

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 ....	2,160	77,507	99,737	24,924	49,141	3,764	85,677	173,906	84,465
1964-65 ....	2,305	86,692	104,111	26,403	55,827	4,461	100,247	204,381	99,673
1965-66 ....	2,449	107,126	107,044	27,722	63,536	5,043	114,566	232,532	112,922
1966-67 ....	2,653	148,647	118,821	29,593	73,563	5,671	130,862	272,518	135,985
1967-68 ....	2,824	196,152	181,626	31,694	85,426	7,153	158,212	324,668	159,303

(a) Book values at end of year; includes estimated value of rented premises and plant. (b) Excludes motors driven by electricity of own generation.

(c) Includes lubricating oil and water.

## Flour Milling

There has been an overall decline in activity in the flour milling industry over recent years due mainly to a decrease in export demand. In 1958-59 production of flour, including quantities used to make self-raising flour, amounted to almost 140 thousand short tons valued at \$9.1 million, whereas in 1967-68 only 111 thousand short tons were produced with a value of \$8.9 million. A production peak for the ten-year period of 168 thousand short tons was achieved in 1960-61 but since then a general decline has occurred in the industry except for partial recoveries in 1963-64 and 1967-68. Production data for bran and pollard show similar trends. Consumption of wheat by the industry in 1967-68 was slightly less than 5 million bushels.

## SECONDARY INDUSTRY

## FLOUR MILLING

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	15	1,885	4,758	354	736	175	10,172	11,936	1,589
1964-65 .....	13	1,819	4,401	332	812	163	9,633	11,521	1,724
1965-66 .....	13	1,811	4,122	291	739	143	8,472	10,347	1,732
1966-67 .....	11	1,778	3,562	264	710	137	7,808	9,730	1,784
1967-68 .....	11	1,707	3,562	277	780	155	8,953	10,924	1,815

(a) Book values at end of year; includes estimated value of rented premises and plant. electricity of own generation.

(c) Includes lubricating oil and water.

(b) Excludes motors driven by

## Jams, Pickles, Sauces and Vinegar

Factories classified to this industry also produce fruit juices, canned fruit and canned and quick-frozen vegetables. With the exception of one establishment processing vegetables at Albany, production is confined to the Perth Statistical Division.

## JAMS, PICKLES, SAUCES AND VINEGAR

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	9	958	754	122	213	22	859	1,305	424
1964-65 .....	8	1,090	1,125	149	250	27	792	1,313	494
1965-66 .....	8	1,186	1,148	142	251	33	854	1,564	676
1966-67 .....	8	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
1967-68 .....	8	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)

(a) Book values at end of year; includes estimated value of rented premises and plant. electricity of own generation.

(c) Includes lubricating oil and water.

(b) Excludes motors driven by  
(d) Not available for publication.

## Bacon Curing

As well as producing bacon and ham, factories classified to this industry also manufacture substantial quantities of smallgoods and, as by-products, smaller quantities of meat and bone meal, lard and tallow. Bacon and ham production, including small amounts produced by factories classified to other industries, has risen from 6.6 million lb valued at \$2.7 million in 1958-59 to 11.4 million lb valued at \$6.8 million in 1967-68, an increase in quantity of 72 per cent.

All of the factories classified to this industry are situated in the Perth Statistical Division.

## BACON CURING

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	4	697	1,416	329	664	84	6,151	7,501	1,265
1964-65 .....	4	798	1,439	343	717	91	6,259	8,042	1,691
1965-66 .....	4	1,021	1,488	329	745	87	6,633	8,228	1,507
1966-67 .....	3	1,091	1,341	352	908	94	6,928	8,558	1,536
1967-68 .....	3	1,085	1,364	374	1,021	103	8,060	10,570	2,407

(a) Book values at end of year; includes estimated value of rented premises and plant. electricity of own generation.

(c) Includes lubricating oil and water.

(b) Excludes motors driven by





#### MUJA GENERATING STATION

Situated thirteen miles from Collie, the nearest town, and adjacent to a source of open-cut coal, the site occupies approximately 350 acres. The power station, which has a capacity of 240,000 kilowatts, came on full load in March 1969.

**Butter, Cheese and Condensed and Processed Milk**

With the exception of one medium-sized establishment, the factories in this industry are situated in the dairying districts of the South-West and Southern Agricultural Statistical Divisions.

A decline in butter production occurred in 1967-68, the production figure of 13.2 million lb, valued at \$4.7 million, being lower than that for any year since 1958-59.

**BUTTER, CHEESE AND CONDENSED AND PROCESSED MILK**

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	17	2,213	4,267	344	674	151	7,091	8,587	1,345
1964-65 .....	18	2,156	4,351	337	715	178	7,988	9,613	1,448
1965-66 .....	19	2,258	4,611	321	742	193	7,802	9,572	1,576
1966-67 .....	17	2,293	4,333	319	744	177	6,789	8,315	1,350
1967-68 .....	16	2,261	4,250	304	773	167	6,399	7,880	1,314

(a) Book values at end of year; includes estimated value of rented premises and plant. electricity of own generation.

(b) Excludes motors driven by electricity of own generation.

(c) Includes lubricating oil and water.

**Aerated Waters, Cordials, etc.**

The major part of the production of aerated waters and cordials is carried out in the Perth Statistical Division, country factories accounting for less than 13 per cent of total production.

Production of aerated waters, including small amounts produced by factories classified to other industries, has risen from 4.4 million gallons (\$1.9 million) in 1958-59 to a peak of 10.3 million gallons (\$6.9 million) in 1966-67 but declined to 9.8 million gallons (\$6.8 million) in 1967-68. Cordial and syrup production have also increased although fluctuations from year to year have been evident. In 1967-68, 510 thousand gallons were produced, valued at \$0.8 million.

**AERATED WATERS, CORDIALS, ETC.**

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	39	1,799	1,427	335	559	60	2,246	3,590	1,285
1964-65 .....	39	2,120	1,535	346	627	64	2,847	4,501	1,591
1965-66 .....	39	2,180	1,611	412	840	71	3,999	5,836	1,766
1966-67 .....	40	2,639	2,011	429	962	85	4,910	7,312	2,317
1967-68 .....	36	2,999	2,184	441	944	88	4,976	7,289	2,225

(a) Book values at end of year; includes estimated value of rented premises and plant. electricity of own generation.

(b) Excludes motors driven by electricity of own generation.

(c) Includes lubricating oil and water.

**Sawmilling**

The following table shows details of mills which saw from the log; mills engaged only in resawing operations have been excluded. Although the majority of the log-sawing mills are located in the South-West Statistical Division there are many, including some of the larger mills, operating in the Perth Statistical Division. There is also some activity in the Southern Agricultural and Central Agricultural Divisions but, in general, the mills in these areas are small in size.

Production of sawn timber (including plywood veneers and railway sleepers) has fluctuated over the ten years to 1967-68. In that year production amounted to 211.7 million superficial feet valued at \$24.1 million and comprised 202.0 million superficial feet from hardwoods and 9.7 million superficial feet from softwoods.

## SAWMILLING (MILLS OPERATING ON LOGS) (a)

Year	Number of sawmills	Land, buildings, plant and machinery (b)	Engines and electric motors used (c)	Persons employed	Salaries and wages	Power, fuel and light used (d)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	183	3,990	38,463	2,832	5,440	436	8,290	19,154	10,428
1964-65 .....	168	4,021	39,415	2,822	5,691	473	8,868	21,209	11,869
1965-66 .....	165	4,275	41,527	2,890	6,443	474	10,074	23,472	12,924
1966-67 .....	160	5,304	44,553	2,728	6,553	470	10,017	23,468	12,981
1967-68 .....	161	6,071	47,553	2,746	6,918	497	10,447	24,631	13,687

(a) Excludes particulars of falling and hauling. (b) Book values at end of year; includes estimated value of rented premises and plant. (c) Excludes motors driven by electricity of own generation. (d) Includes lubricating oil and water.

## Cabinet and Furniture Making and Upholstery

With the exception of a few small establishments, this industry is concentrated in the Perth Statistical Division.

Factories classified to this industry produce small quantities of joinery, doors and metal furniture in addition to wooden furniture. The value of wooden furniture produced, including small quantities produced by factories classified to other industries, has risen from \$4.6 million in 1958-59 to \$13.2 million in 1967-68.

## CABINET AND FURNITURE MAKING AND UPHOLSTERY

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 .....	162	1,757	3,509	1,048	1,652	42	3,806	6,899	3,050
1964-65 .....	155	2,094	3,513	1,117	1,858	44	4,539	8,044	3,462
1965-66 .....	167	2,625	3,860	1,152	2,076	51	4,664	8,773	4,058
1966-67 .....	173	2,978	4,084	1,250	2,444	57	5,392	10,064	4,615
1967-68 .....	193	3,986	4,503	1,403	2,996	64	6,560	12,321	5,697

(a) Book values at end of year; includes estimated value of rented premises and plant. (b) Excludes motors driven by electricity of own generation. (c) Includes lubricating oil and water.

## ELECTRICITY AND TOWN GAS UNDERTAKINGS

## Electricity Generation and Transmission

Prior to the establishment of The State Electricity Commission of Western Australia in 1946, electricity was generated and distributed by a large number of independent power stations. A government-owned steam power station at East Perth supplied the metropolitan area, and small units of the same type, but privately-owned, operated in the major mining centres of Collie and Kalgoorlie. With other minor exceptions the country areas were dependent on internal combustion equipment, owned privately or by local government authorities and supplying either alternating or direct current at various voltages. Since 1946 a number of power stations have been absorbed into the Commission's network and, although there are still some independent operators generating electricity for sale or for their own industrial requirements, the Commission now supplies most of the electricity used in the State and all electricity sold in the metropolitan area. The Commission functions under the *State Electricity Commission Act, 1945-1966* and consists of nine members, including the Chairman, appointed by the Governor. Four of the Commissioners are representatives of consumers, one for the metropolitan area, two for the rest of the State and one representing commercial consumers. Of the remaining five, one is the Under Treasurer of the State or his deputy, one represents employees of the Commission and three are required to be qualified engineers.



In Western Australia, electricity is now supplied principally by steam power stations, with internal combustion equipment next in importance and a small quantity provided by a hydro-electric installation. Steam power stations accounted for 54 per cent of installed generator capacity in 1937-38 but by 1967-68 the proportion had risen to 76 per cent. In 1967-68 2,216,085 thousand kilowatts of electricity were generated, of which 1,846,405 thousand kilowatts were distributed to consumers. Coal and oil are the most important sources of energy for electricity generation, 897,922 tons of coal and 67,999,994 gallons of fuel oil being used for this purpose during 1967-68.

In the metropolitan area the Commission has modernised the 55,000 kilowatt plant at the East Perth power station and, in 1954, completed a new station at South Fremantle, with a capacity of 100,000 kilowatts. These are linked with a 120,000 kilowatt capacity power station at Bunbury, and a 240,000 kilowatt capacity power station at Muja. The Muja power station came on full load in March 1969.

One of the responsibilities undertaken by the State Electricity Commission was the administration of the *South-West State Power Scheme Act, 1945*, designed to develop electrification in the south-western portion of the State. As a first stage in this development, it acquired the Collie power station and increased its capacity from 5,000 to 12,500 kilowatts. In 1956 it installed at Wellington Dam, near Collie, a hydro-turbine which is connected to the Collie power station and operated from it by remote control. Completion of the raising of the wall of the dam in 1960 has made it possible to operate the unit at the head of water for which it was designed.

The Commission is also constructing a major power station at Cockburn Sound which will use a residual fuel from the nearby refinery at Kwinana. The first 120,000 kilowatt unit went into commercial operation during 1970 and similar units are planned to be commissioned in 1971, 1972 and 1973.

The main interconnections are two 132,000 volt transmission lines from the Bunbury power station and two 132,000 volt lines from the Muja power station to terminal substations in the metropolitan area, and a 132,000 volt line from Muja to the Bunbury power station. A 132,000 volt transmission system linking substations is being provided to meet the increasing demand for power in the metropolitan area.

In December 1959 an amendment to the State Electricity Commission Act was passed to enable consumers to contribute towards the extension of mains beyond the distance that can be supplied economically by the Commission. At 30 June 1970 some 9,000 consumers had been connected in country and metropolitan areas under this Contributory Extension Scheme.

Minor systems which are privately-owned or controlled by local government authorities are being absorbed as the transmission lines extend into the country areas and when this work is completed all except the more sparsely-populated areas of the State will be provided with electric power of standard frequency and voltage.

## ELECTRICITY GENERATING (a)

Year	Generating stations	Land, buildings, plant and machinery (b)	Engines used to drive generators	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64	94	41,117	544,648	1,020	2,682	7,982	929	18,859	9,948
1964-65	85	38,125	544,546	1,015	2,750	8,709	879	21,105	11,517
1965-66	85	56,442	632,030	1,082	3,240	9,340	1,048	23,065	12,678
1966-67	83	74,110	762,438	1,120	3,707	10,273	1,399	27,106	15,434
1967-68	89	82,236	919,502	1,255	4,188	11,155	1,655	31,040	18,231

(a) Excludes particulars of transmission and distribution.  
rented premises and plant.

(b) Book values at end of year; includes estimated value of  
(c) Includes lubricating oil and water.

### Town Gas Production

Town gas production in Western Australia is now limited to three establishments. Two works, situated at Perth and Albany, are operated by the State Electricity Commission and the third, at Fremantle, is operated privately.

During 1967-68 1,777,643 thousand cubic feet of town gas were produced from 22,776 tons of carbonised coal and 5,372,557 gallons of gas-making oil. Further details of gas production appear in the table on page 421.

#### GAS WORKS (a)

Year	Gas works	Land, buildings, plant and machinery (b)	Engines and electric motors used (c)	Persons employed	Salaries and wages	Power, fuel and light used (d)	Repairs, containers and materials used	Value of output	Net production
		\$'000	rated hp		\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 ....	3	3,374	1 432	145	352	194	866	1,807	747
1964-65 ....	3	3,520	1,396	138	340	208	902	1,875	765
1965-66 ....	3	3,362	1,396	127	288	230	914	1,967	823
1966-67 ....	3	3,462	1,396	128	353	252	919	1,885	714
1967-68 ....	3	3,596	1,396	109	346	226	871	2,085	988

(a) Excludes particulars of distribution. (b) Book values at end of year; includes estimated value of rented premises and plant. (c) Excludes motors driven by electricity of own generation. (d) Includes lubricating oil and water.

### GOVERNMENT FACTORIES

The activities of factories operated by the Commonwealth and State Governments and by government instrumentalities, which are included in all tables appearing elsewhere in this Part, are shown in summary form in the following table. Factories operated by local government authorities are not regarded as 'Government' factories for the purpose of this table and are therefore excluded. They are, however, included in all other tables.

The figures shown relate to work done in the repair and maintenance of government plant and equipment; other factory activities associated with meat treatment, charcoal-iron production, printing and sawmilling; and the operations of the principal electricity and gas undertakings, which are conducted by the State Government.

#### SUMMARY OF GOVERNMENT FACTORY ACTIVITY

Year	Number of factories	Persons employed	Salaries and wages	Value of—				
				Materials used (a)	Power, fuel and light used (b)	Net production (c)	Output (c)	Land, buildings, plant and machinery (d)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1963-64 ....	133	7,482	16,071	11,914	7,367	25,972	45,253	48,775
1964-65 ....	135	7,549	16,882	12,189	8,046	28,288	48,523	45,589
1965-66 ....	134	7,554	18,253	13,319	8,802	30,122	52,243	64,649
1966-67 ....	139	7,514	19,634	15,851	8,716	34,008	58,576	68,169
1967-68 ....	135	7,376	20,119	13,816	8,566	35,388	57,770	68,099

(a) Includes containers and repairs to buildings, plant, etc. (b) Includes lubricating oil and water. (c) See *Explanatory Notes and Definitions* on pages 398-9. (d) Book values at end of year; includes estimated value of rented premises and plant.

### ARTICLES PRODUCED

The following table lists some of the principal products of secondary industry in the State and shows the quantities produced in each of the five years from 1965-66 to 1969-70. Production of many items is confidential (see note *Confidential Information* on page 399) and consequently the list is incomplete and should not be regarded as an assessment of factory development as a whole.

## PRODUCTION OF SELECTED COMMODITIES (a)

Commodity	Unit	1965-66	1966-67	1967-68	1968-69 (†)	1969-70 (†)
Aerated waters .....	'000 gal	8,796	10,324	9,831	11,078	13,076
Bacon and ham .....	'000 lb	9,605	10,259	11,404	12,133	12,855
Bath heaters—solid fuel .....	number	4,498	4,312	4,556	4,342	3,810
Batteries—automotive (b)—						
6 volt .....	number	8,456	9,020	9,745	9,582	7,538
12 volt .....	number	23,041	27,649	29,582	18,785	14,812
Boots, shoes and sandals (c) .....	pair	847,907	875,341	906,726	780,248	702,932
Bran .....	ton (2,000 lb)	21,524	19,366	20,976	19,952	19,200
Bread (2 lb loaf) (d) .....	'000	57,333	58,777	61,335	(e)	(e)
Bricks—clay (all sizes) .....	'000	140,611	163,166	207,575	274,318	284,256
Butter .....	'000 lb	18,133	14,394	13,248	(f) 13,937	(f) 13,014
Cheese .....	'000 lb	2,712	3,807	* 4,373	(f) 4,458	(f) 3,787
Coats—sports—men's and youths <sup>g</sup> .....	number	792	775	821	664	553
Coke (including coke breeze) .....	ton	14,036	16,461	12,144	(e)	(e)
Cordials and syrups .....	gallon	428,007	510,823	509,980	584,633	771,917
Electricity generated (government) .....	mil. kWh	1,371	1,544	1,673	1,902	2,192
Fibrous plaster sheets .....	'000 sq yd	1,716	1,743	1,954	2,030	2,147
Flour—						
Plain (g) .....	ton (2,000 lb)	113,665	101,109	110,692	108,140	103,727
Self-raising .....	cwt	70,515	62,548	66,111	(e)	(e)
Gas (town) (h) .....	'000 therms	7,132	7,498	8,536	9,556	10,576
Hot water systems—domestic (i)—						
Electric .....	number	4,135	6,081	8,396	10,237	11,800
Other .....	number	9,016	9,370	10,636	10,651	10,314
Ice cream .....	'000 gal	(j)	2,688	2,819	3,118	3,531
Jelly crystals .....	lb	972,828	954,926	934,435	(e)	(e)
Leather (all types) .....	'000	1,029	961	849	(e)	(e)
Macaroni, spaghetti, vermicelli .....	cwt	15,654	14,550	12,916	(e)	(e)
Mattresses—soft-filled (k) .....	number	66,755	62,735	61,486	49,233	51,526
Paints and enamels, ready-mixed (excluding water paints) .....	gallon	585,137	633,715	701,002	748,607	757,325
Pickles and chutneys .....	pint	518,540	406,460	390,288	(e)	(e)
Plaster of paris .....	ton	20,994	21,573	24,960	29,316	32,951
Pollard .....	ton (2,000 lb)	16,210	14,187	16,996	16,716	15,931
Powdered milk .....	'000 lb	5,996	5,942	6,010	7,394	7,549
Pyjama suits—woven fabric—men's, youths and boys <sup>g</sup> .....	dozen	10,582	10,054	9,028	9,782	8,964
Sauce (all types) .....	pint	316,818	297,144	170,171	(e)	(e)
Shirts (all types)—men's, youths and boys <sup>g</sup> .....	dozen	64,905	64,070	63,153	65,209	66,288
Sleepers, railway—sawn .....	'000 sup. ft	58,817	53,392	48,691	26,733	32,366
Slippers .....	pair	140,034	176,207	125,580	102,239	97,823
Soap and soap substitutes (including detergents) .....	cwt	65,413	71,512	75,202	81,277	91,071
Steel, constructional—fabricated .....	ton	52,357	58,368	73,703	(e)	(e)
Stock and poultry foods—meat and bone meal .....	cwt	246,040	259,713	370,548	404,625	541,093
Suits—men's and youths <sup>g</sup> —2 and 3 piece .....	number	9,932	9,961	9,327	8,705	7,492
Sulphuric acid .....	ton	404,848	455,705	535,663	487,013	473,392
Superphosphate .....	'000 ton	1,070	1,201	1,412	1,223	1,096
Tallow (raw and refined) (l) .....	cwt	234,099	274,236	339,591	(e)	(e)
Tiles (acoustic)—plaster .....	sq yd	24,595	24,024	(j)	23,579	35,904
Timber (from local logs)—sawn (m) .....	'000 sup. ft	211,638	204,505	211,726	188,294	190,845
Trousers—men's and youths <sup>g</sup> —						
Sports .....	number	131,860	91,186	107,398	(j)	(j)
Work (including jeans) .....	number	134,924	122,808	101,597	(j)	(j)
Tyres (retreaded and recapped) .....	number	225,168	221,359	219,501	(e)	(e)
Vinegar (including bulk) .....	gallon	144,597	137,296	148,687	(e)	(e)
Wire—barbed .....	ton	1,615	1,983	1,713	1,597	1,797
Wool—scoured .....	'000 lb	26,690	26,781	27,916	31,713	32,916

(a) Figures include quantities produced and used in own works. (b) Includes rebuilt batteries. (c) Excludes sandals, shoes, rubber thongs and other footwear wholly of rubber. (d) Includes loaves other than 2 lb size, and bread rolls, etc. in terms of 2 lb loaf equivalent. (e) Not available at time of publication. (f) Source: Commonwealth Dairy Produce Equalisation Committee Limited. (g) Includes atta flour and quantities used for making self-raising flour. (h) Total made—includes losses in distribution, etc. (i) Excludes solar absorber units. (j) Not available for publication. (k) Includes rubber, plastic foam and sponge. (l) Includes dripping. (m) Includes plywood veneers and railway sleepers (see separate item above). † Preliminary. \* Revised.

## DEPARTMENT OF INDUSTRIAL DEVELOPMENT

At the end of the first World War the State Government, with the object of fostering secondary industry, established a Council of Industrial Development which has since been succeeded by the Department of Industrial Development.

The functions of this Department are to assist the expansion of existing industry, foster the establishment of new industries, encourage exports, organise exhibitions and publicise Western Australian trade and industry. The Department is continuously engaged in feasibility studies relating to import replacement. It also undertakes market research and conducts investigations into the commercial possibilities of using indigenous raw materials for industrial purposes.

In carrying out these functions the Department establishes and maintains a close liaison with industry and with Government Departments responsible for the provision of services, information and finance.

The Department, in certain circumstances, may recommend that financial assistance, by way of direct loan or guarantee of a loan, be granted under the *Industry (Advances) Act, 1947-1961* to industries which are unable to obtain sufficient capital from normal sources to commence or expand operations.

## CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION

### Part 1—External Trade<sup>(1)</sup>

#### Constitutional Provisions and Legislation

By the Commonwealth of Australia Constitution Act, section 51 (1), the power to make laws with respect to trade and commerce with other countries was conferred on the Commonwealth Parliament. Under section 86 of the Constitution, the collection and control of customs and excise passed to the Executive Government of the Commonwealth on 1 January 1901.

Commonwealth legislation affecting overseas trade includes the Customs Act, the Customs Tariff and the Customs Tariff (Dumping and Subsidies) Act. The Customs Act is the administrative Act under which the Department of Customs and Excise operates. The Customs Tariff provides the statutory authority for imposing the actual rates of duty operative from time to time, while the Customs Tariff (Dumping and Subsidies) Act provides protection for Australian industry against various forms of unfair trading.

The Tariff Board Act constitutes a Tariff Board of eight members to advise the Government on matters relating to the protection and encouragement of Australian industry and on the general effect of the working of the Customs and Excise Tariffs. The Tariff Board conducts public hearings in connection with any revision of the Tariff, proposals concerning bounties, or complaints that a manufacturer is taking undue advantage of the protection afforded by the Tariff.

### ENCOURAGEMENT OF OVERSEAS TRADE

#### Trade Agreements

The General Agreement on Tariffs and Trade (G.A.T.T.), of which Australia is an original member, came into force on 1 January 1948. It is a multilateral trade treaty designed to facilitate trading relations between participating countries by reducing tariff and other barriers to the free exchange of goods.

Features of the Agreement are the schedules of tariff concessions which its members have agreed to apply consequent to tariff negotiations with each other, the application of most-favoured-nation treatment among its members, the avoidance of trade discrimination, and a code of agreed commercial policy rules for international trading. Six main tariff negotiations have been conducted, as a result of which Australia has obtained tariff concessions from individual countries on a number of her principal or potential exports to them.

Australia also has numerous bilateral trade agreements with overseas countries which include the United Kingdom, Canada, New Zealand, Japan, the Republic of China (Taiwan), and the Union of Soviet Socialist Republics.

For further details of these bilateral trade agreements and the General Agreement on Tariffs and Trade, the reader is referred to the *Official Year Book of the Commonwealth of Australia*.

#### Trade Services

**Trade Commissioner Service.** The stimulation of interest abroad in Australia's exports is an important government activity in which the Australian Trade Commissioner Service plays a prominent part. The Service is administered by the Commonwealth Department

<sup>(1)</sup> A brief account of the historical development of the external trade of Western Australia from 1829 is given in the *Western Australian Year Book*, No. 6—1967 and in all issues of the *Official Year Book of Western Australia*, No. 1—1957 (*New Series*) to No. 5—1965.

of Trade and Industry and is responsible for overseas commercial intelligence. Particular facilities offered to Australian exporters and export organisations include market surveys, advice on selling and advertising methods, arranging introductions with buyers and agents, providing reports on the standing of overseas firms, assisting business visitors and organising trade missions, trade displays and other publicity and promotion media.

In some countries, Trade Commissioners participate in inter-governmental negotiations on economic and commercial matters. A Trade Commissioner may also be called upon to act as the Australian Government representative in those countries where there is no Australian diplomatic or consular mission.

In 1957 Australia's official commercial representation was extended by the introduction of a system of Trade Correspondents. These correspondents, who are appointed in countries where there is no Trade Commission, are engaged on a part-time basis and operate under the general direction of the Trade Commissioner in whose area they are located.

**Trade Missions.** Since 1954 the Australian Government has sent a number of trade missions abroad as part of the campaign to increase exports. In this they have proved successful, for the trade missions, which may be of the survey or selling type, have been directly responsible for substantial and permanent increases in export earnings.

A survey mission is designed to carry out a survey of a particular area, obtain market information, and assess the market potential for Australian products or specific commodities. For a selling mission, arrangements are made for specific industries or groups of firms representing a number of industries to participate in a planned selling campaign in overseas markets with known sales potential. The mission visits the area, publicises its products and negotiates sales.

### **Export Payments Insurance Corporation**

The *Export Payments Insurance Corporation Act* 1956 established the Corporation with the objective of protecting Australian exporters against risks of loss arising from non-payment of their overseas accounts. The main risks of loss against which the Corporation insures are the 'commercial' risks of the insolvency or protracted default of the buyer, and 'political' risks, such as war or cancellation of a valid import licence. More recently, in 1965, the scope of the Corporation was widened to include the ability to insure Australian investments in overseas countries against, broadly, three types of 'political' risks: expropriation; inability to transfer currencies; and damage as the result of war or insurrection.

### **Export Incentives**

The Commonwealth Government provides taxation concessions as financial incentives to export. A special income tax allowance for export market development expenditure is designed to encourage firms to incur promotion expenditure in advance of export sales and to assist exporters and potential exporters to expand sales in the existing markets and to enter new overseas markets. Rebates of Pay-roll Tax are also granted to employers whose export sales of goods or property rights have increased above their average annual level in a base period.

## **CLASSIFICATION AND VALUATION OF TRADE**

### **Sources of Statistics**

Overseas trade statistics are compiled from documents obtained under the Customs Act and supplied to the Commonwealth Bureau of Census and Statistics by the Department of Customs and Excise. Particulars of Western Australia's overseas trade, as presented in this Part, have been prepared from tabulations furnished by the Commonwealth Bureau of Census and Statistics, Canberra.

Statistics of Western Australia's trade with other Australian States are compiled by the Western Australian Office of the Bureau of Census and Statistics from information contained in documents collected under authority of the *Census and Statistics Act 1905-1966* from importers, exporters, and other persons concerned with the distribution of goods.

### Classification of Commodities

Overseas trade statistics for years up to and including 1964-65 were compiled according to a Statistical Classification of Imports and Exports which, in 1964-65, contained approximately 3,700 items of import and 1,300 items of export.

On 1 July 1965 a new Australian Customs Tariff was introduced. The nomenclature used in the Tariff is that of the Convention on Nomenclature for the Classification of Goods in Customs Tariffs, an international agreement signed at Brussels on 15 December 1950. The system of naming established by the Convention has come to be known as the 'Brussels Nomenclature'.

From 1 July 1965, imports into Australia have been classified according to an *Australian Import Commodity Classification* of some 5,000 items based on the *United Nations Standard International Trade Classification, Revised*, which closely follows the Brussels tariff nomenclature.

Although the basis of the classification of exports remained unchanged for 1965-66, the export section of the Statistical Classification of Imports and Exports was published separately, with some minor revisions, as the *Australian Export Commodity Classification*. A new Australian Export Commodity Classification of some 2,000 items, based on the Standard International Trade Classification, was introduced on 1 July 1966.

The Standard International Trade Classification consists of 10 broad commodity categories designated 'Sections' and comprising 56 commodity 'Divisions' which are further divided into 177 commodity 'Groups'. The structure of the classification serves to provide a summary of data relating to 1,312 basic items of international trade.

For the purpose of recording details of Western Australia's trade with other Australian States, a revised Interstate Trade Classification based on the new Australian Commodity Classifications, has been prepared in the Western Australian Office of the Bureau. In compiling this document, the basic items of the Australian Classifications have been compressed or expanded, according to their significance in Western Australia's trade. The Interstate Trade Classification comprises some 860 items of import and 370 items of export within the structure of commodity Sections, Divisions and Groups referred to previously. The revised Interstate Trade Classification was first used in compiling details of Western Australia's trade with other Australian States in respect of the year 1965-66.

The commodity descriptions appearing in some of the tables in this Part are, in some cases, abbreviations of the full text, which is available in the *Australian Import Commodity Classification* and the *Australian Export Commodity Classification*.

### Valuation of Items of Trade

All values in overseas trade statistics are determined on a 'free on board (f.o.b.) port of shipment' basis. This means that all charges, in particular the cost of freight and insurance, incurred after the goods have been exported from the port of shipment are excluded. Only transport and service charges incurred, or usually incurred, prior to export are included in the determination of trade values.

The procedure adopted to value overseas exports and imports is as follows.

*Exports.* The recorded value of goods exported includes the cost of containers and outside packages and is determined as follows.

- (a) Goods sold to overseas buyers before export are valued at the Australian f.o.b. port of shipment equivalent of the actual price at which the goods were sold.
- (b) Goods shipped on consignment are valued at the Australian f.o.b. port of shipment equivalent of the price paid for similar goods of Australian origin in the principal markets of the country to which they are dispatched for sale.

**Imports.** The recorded value of goods imported is the amount on which duty is payable or would be payable if the duty were *ad valorem*. Value for duty is the f.o.b. port of shipment equivalent of either:

- (a) the actual price paid or to be paid by the Australian importer plus any special deduction (transactions value); or
- (b) 'the current domestic value' of the goods in the country of origin; whichever is the higher.

The basis of valuation for exports to other Australian States is f.o.b. at the port of shipment.

Statistics of imports from other Australian States are recorded in terms of landed cost.

### SUMMARY OF TRADE

Statistics of Western Australia's external trade are presented in the following series of tables. Particulars relate, in all cases, to the year ended 30 June. The figures shown for exports do not include ships' stores, details of which are given in the table on page 437.

The following table shows the value of Western Australia's interstate and overseas imports and exports during each year from 1964-65 to 1968-69.

VALUE OF INTERSTATE AND OVERSEAS TRADE OF WESTERN AUSTRALIA  
(\$'000)

Direction of trade	1964-65	1965-66	1966-67	1967-68	1968-69
<b>INTERSTATE—</b>					
Imports .....	343,899	403,054	474,852	527,052	562,312
Exports .....	119,954	119,619	116,030	124,505	149,892
Excess of—					
Imports over exports .....	223,945	283,435	358,822	402,547	412,421
<b>OVERSEAS—</b>					
Imports .....	153,540	175,690	159,390	206,980	203,533
Exports .....	243,078	314,404	421,325	475,260	546,366
Excess of—					
Exports over imports .....	89,538	138,714	261,935	268,280	342,833
<b>TOTAL—</b>					
Imports .....	497,439	578,744	634,242	734,031	765,846
Exports .....	363,033	434,023	537,355	599,765	696,258
Excess of—					
Imports over exports .....	134,407	144,721	96,887	134,266	69,588

### DIRECTION OF TRADE

The term *Country of Origin*, as used in recording the statistics of overseas trade, means the country of production; *Country of Destination* means the country to which goods were consigned at the time of export. In compiling statistics of Western Australia's interstate imports and exports, goods are classified according to the State or Territory from which or to which they were consigned.

In the next table details of the value of imports into and exports from Western Australia during the period 1966-67 to 1968-69 are classified according to origin or destination. Imports from other Australian States were nearly three times the value of overseas imports in each of the years shown while the reverse was true in relation to exports. Additional information regarding Western Australia's trade with other Australian States appears on pages 430 and 434 and in greater detail in the annual mimeographed publication *Inter-state Trade* compiled and issued free of charge by the Western Australian Office of the Bureau of Census and Statistics.

The highest proportion of imports from overseas in 1968-69 came from the United Kingdom followed by the United States of America and Japan. Exports overseas in 1968-69 were principally to Japan, the United States of America and the United Kingdom.



## IMPORTS AND EXPORTS

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA  
CLASSIFIED ACCORDING TO ORIGIN OR DESTINATION  
(\$'000)

Origin or destination	Imports			Exports		
	1966-67	1967-68	1968-69	1966-67	1967-68	1968-69
<b>INTERSTATE—</b>						
New South Wales (a) .....	195,133	228,256	237,753	46,170	48,447	54,692
Victoria .....	196,801	215,044	235,842	35,741	40,405	49,079
Queensland .....	16,607	17,175	17,111	3,573	4,362	6,224
South Australia .....	59,259	59,284	63,268	23,240	23,450	29,958
Tasmania .....	6,707	6,742	7,514	3,199	2,526	2,590
Northern Territory .....	343	550	824	4,107	5,314	7,348
<b>Total, Interstate</b> .....	<b>474,852</b>	<b>527,052</b>	<b>562,312</b>	<b>116,030</b>	<b>124,505</b>	<b>149,892</b>
<b>OVERSEAS—</b>						
Belgium-Luxembourg .....	991	864	865	5,376	5,560	6,814
Canada .....	6,042	7,497	7,700	1,569	3,604	5,769
Ceylon .....	1,264	1,179	1,204	944	1,215	1,212
China (mainland) .....	616	563	688	46,100	61,583	29,856
China, Republic of (Taiwan) (b) .....	100	260	241	1,370	2,524	4,035
Christmas Island (Indian Ocean) .....	1,711	2,429	2,915	1,265	1,997	1,766
Czechoslovakia .....	238	275	416	3,369	4,054	3,368
Denmark .....	310	619	633	172	172	102
Fiji .....	7	3	1	708	1,113	325
Finland .....	545	618	326	237	49	29
France .....	1,481	3,220	2,254	12,666	14,183	20,197
Germany (East) .....	61	76	52	923	490	502
Germany, Federal Republic of .....	5,577	9,075	10,208	16,217	20,162	25,964
Gilbert and Ellice Islands .....	822	497	605	...	...	...
Hong Kong .....	4,330	1,421	1,369	6,074	5,023	3,276
Hungary .....	57	67	55	800	1,016	529
India .....	2,793	2,011	1,537	17,206	25,500	7,986
Indonesia .....	157	348	321	119	475	410
Iran .....	6,773	6,454	6,047	534	76	1,490
Iraq .....	2,873	715	222	45	86	48
Ireland .....	115	119	176	2,411	404	476
Italy .....	2,528	4,969	4,814	14,095	10,044	15,539
Japan .....	16,605	24,915	27,827	115,893	162,012	226,649
Jordan .....	1	...	...	1,531	253	...
Korea (North) .....	...	...	...	2,865	590	2,116
Kuwait .....	8,950	10,510	12,397	1,126	1,583	1,418
Lebanon .....	4	5	2	2,177	13	9
Malaysia .....	1,891	2,746	2,591	4,464	5,512	7,614
Mauritius .....	9	13	11	703	774	599
Mexico .....	1,415	1,509	301	2,067	1,484	1,605
Mozambique .....	42	3	...	885	330	262
Nauru .....	2,759	4,479	5,208	10	...	...
Netherlands .....	1,226	3,793	2,111	6,373	7,276	9,322
New Caledonia .....	...	3	...	1,897	474	2
New Zealand .....	1,761	2,216	2,941	4,699	4,299	3,614
Norway .....	703	731	939	119	2,687	73
Pakistan .....	2,309	2,169	2,421	16,133	204	1,890
Philippines .....	92	232	227	392	652	812
Poland .....	48	54	1,069	2,228	4,420	5,372
Qatar .....	8,657	5,102	6,575	249	453	441
Saudi Arabia .....	...	...	...	624	827	1,190
Singapore .....	2,194	2,699	4,156	9,904	13,598	14,600
South Africa .....	823	1,076	1,425	3,480	2,373	1,483
South Yemen, Republic of (c) .....	3,026	2,582	2,441	1,232	283	708
Spain .....	322	417	656	1,117	1,020	1,242
Sweden .....	1,726	2,151	2,284	555	397	498
Switzerland .....	1,363	1,205	1,121	95	102	168
Thailand .....	83	76	47	517	493	614
Togo .....	1,379	1,051	...	1,266	1,352	1,420
Trucial States, Muscat and Oman .....	2,314	4,994	2,429	1,252	948	1,534
Turkey .....	9	8	14	7,467	10,051	19,596
Union of Soviet Socialist Republics .....	7	20	28	1,551	394	868
United Arab Republic .....	...	...	(d)	46,290	34,621	37,605
United Kingdom .....	35,383	40,141	40,860	41,852	49,504	66,275
United States of America .....	20,729	44,980	37,946	747	639	1,271
Yugoslavia .....	22	46	54	1,061	298	1,32
Zambia .....	...	...	3	6,301	5,322	5,769
Other .....	4,145	3,775	2,803	...	...	...
<b>Total, Overseas</b> .....	<b>159,390</b>	<b>206,980</b>	<b>203,533</b>	<b>421,325</b>	<b>475,260</b>	<b>546,366</b>
<b>GRAND TOTAL</b> .....	<b>634,242</b>	<b>734,031</b>	<b>765,846</b>	<b>537,355</b>	<b>599,765</b>	<b>696,258</b>

(a) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales.  
 (b) Previously described as *China, Republic of (Formosa)*.  
 (c) Previously described as *South Arabia, Federation of*.  
 (d) Less than \$500.

The following table shows the proportional distribution of Western Australia's trade with overseas countries and with Australian States and Territories during each of the years 1966-67 to 1968-69.

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA  
PROPORTIONS ACCORDING TO ORIGIN OR DESTINATION  
(Per cent of total)

Origin or destination	Imports			Exports		
	1966-67	1967-68	1968-69	1966-67	1967-68	1968-69
<b>INTERSTATE—</b>						
New South Wales (a) .....	41.09	43.31	42.28	39.79	38.91	36.49
Victoria .....	41.45	40.80	41.94	30.80	32.45	32.74
Queensland .....	3.50	3.26	3.04	3.08	3.50	4.15
South Australia .....	12.48	11.25	11.25	20.03	18.84	19.99
Tasmania .....	1.41	1.28	1.34	2.76	2.03	1.73
Northern Territory .....	0.07	0.10	0.15	3.54	4.27	4.90
Total, Interstate .....	100.00	100.00	100.00	100.00	100.00	100.00
<b>OVERSEAS—</b>						
Belgium-Luxembourg .....	0.62	0.42	0.42	1.28	1.17	1.25
Canada .....	3.79	3.62	3.78	0.37	0.76	1.05
Ceylon .....	0.79	0.57	0.59	0.22	0.26	0.22
China (mainland) .....	0.39	0.27	0.34	10.94	12.96	5.46
China, Republic of (Taiwan) (b) .....	0.06	0.13	0.12	0.33	0.53	0.74
Christmas Island (Indian Ocean) .....	1.07	1.17	1.43	0.30	0.42	0.32
Czechoslovakia .....	0.15	0.13	0.20	0.80	0.85	0.62
Denmark .....	0.19	0.30	0.31	0.04	0.04	0.02
Fiji .....	(c)	(c)	(c)	0.17	0.23	0.06
Finland .....	0.34	0.30	0.16	0.06	0.01	0.01
France .....	0.93	1.56	1.11	3.01	2.98	3.70
Germany (East) .....	0.04	0.04	0.03	0.22	0.10	0.09
Germany, Federal Republic of .....	3.50	4.38	5.02	3.85	4.24	4.75
Gilbert and Ellice Islands .....	0.52	0.24	0.30	.....	.....	.....
Hong Kong .....	2.72	0.69	0.67	1.44	1.06	0.60
Hungary .....	0.04	0.03	0.03	0.19	0.21	0.10
India .....	1.75	0.97	0.75	4.08	5.37	1.46
Indonesia .....	0.10	0.17	0.16	0.03	0.10	0.08
Iran .....	4.25	3.12	2.97	0.13	0.16	0.27
Iraq .....	1.80	0.35	0.11	0.01	0.02	0.01
Ireland .....	0.07	0.06	0.09	0.57	0.08	0.09
Italy .....	1.59	2.40	2.37	3.35	2.11	2.84
Japan .....	10.42	12.04	13.67	27.51	34.09	41.48
Jordan .....	(c)	.....	.....	0.36	0.05	.....
Korea (North) .....	.....	.....	.....	0.68	0.12	0.39
Kuwait .....	5.62	5.08	6.09	0.27	0.33	0.26
Lebanon .....	(c)	(c)	(c)	0.52	(c)	(c)
Malaysia .....	1.19	1.33	1.27	1.06	1.16	1.39
Mauritius .....	0.01	0.01	0.01	0.17	0.16	0.11
Mexico .....	0.89	0.73	0.15	0.49	0.31	0.29
Mozambique .....	0.03	(c)	.....	0.21	0.07	0.05
Nauru .....	1.73	2.16	2.56	(c)	.....	.....
Netherlands .....	0.77	1.83	1.04	1.51	1.53	1.71
New Caledonia .....	.....	(c)	.....	0.45	0.10	(c)
New Zealand .....	1.10	1.07	1.44	1.12	0.90	0.66
Norway .....	0.44	0.35	0.46	0.03	0.57	0.01
Pakistan .....	1.45	1.05	1.19	3.83	0.04	0.35
Philippines .....	0.06	0.11	0.11	0.09	0.14	0.15
Poland .....	0.03	0.03	0.53	0.53	0.93	0.98
Qatar .....	5.43	2.47	3.23	0.06	0.10	0.08
Saudi Arabia .....	.....	.....	.....	0.15	0.17	0.22
Singapore .....	1.38	1.30	2.04	2.35	2.86	2.67
South Africa .....	0.52	0.52	0.70	0.83	0.50	0.27
South Yemen, Republic of (d) .....	1.90	1.25	1.20	0.29	0.06	0.13
Spain .....	0.20	0.20	0.32	0.27	0.21	0.23
Sweden .....	1.08	1.04	1.12	0.13	0.08	0.09
Switzerland .....	0.86	0.58	0.55	0.02	0.02	0.03
Thailand .....	0.05	0.04	0.02	0.12	0.10	0.11
Togo .....	0.87	0.51	.....	.....	.....	.....
Trucial States, Muscat and Oman .....	1.45	2.41	1.19	0.30	0.28	0.26
Turkey .....	0.01	(c)	0.01	0.30	0.20	0.28
Union of Soviet Socialist Republics .....	(c)	0.01	0.01	1.77	2.11	3.59
United Arab Republic .....	.....	.....	(c)	0.37	0.08	0.16
United Kingdom .....	22.20	19.39	20.08	10.99	7.28	6.88
United States of America .....	13.01	21.73	18.64	9.93	10.42	12.13
Yugoslavia .....	0.01	0.02	0.03	0.18	0.13	0.23
Zambia .....	.....	.....	(c)	0.25	0.06	0.01
Other .....	2.60	1.82	1.38	1.50	1.12	1.06
Total, Overseas .....	100.00	100.00	100.00	100.00	100.00	100.00

(a) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales. (b) Previously described as *China, Republic of (Formosa)*. (c) Less than 0.005 per cent. (d) Previously described as *South Arabia, Federation of*.

## IMPORTS

The following table shows the value of the principal items of interstate and overseas imports into Western Australia during 1967-68 and 1968-69.

VALUE OF PRINCIPAL IMPORTS INTO WESTERN AUSTRALIA—SELECTED COMMODITIES  
(\$'000)

Division	Description	1967-68			1968-69		
		Interstate	Overseas	Total	Interstate	Overseas	Total
11	Beverages, alcoholic .....	3,856	711	4,568	4,636	870	5,506
51	Chemical elements and compounds .....	5,102	9,323	14,425	3,817	8,116	11,933
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	37,037	468	37,505	39,441	515	39,956
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations— Soap and cleansing preparations .....	4,969	156	5,125	5,263	163	5,426
	Toilet preparations (except soaps) .....	5,273	35	5,307	6,632	53	6,685
27	Fertilisers, crude .....	52	9,794	9,846	11	9,522	9,534
	Food—						
04	Cereals and cereal preparations .....	4,415	304	4,719	5,946	410	6,356
06, 07	Confectionery .....	5,160	125	5,285	4,918	146	5,064
03	Fish and fish preparations .....	574	1,829	2,403	613	2,384	2,996
05	Fruit and vegetables—						
	Fruit—					(a)	
	Fresh .....	930	....	930	468	....	468
	Other .....	3,248	118	3,366	3,258	132	3,390
	Vegetables, fresh, prepared or preserved .....	3,731	496	4,228	3,829	531	4,361
01	Meat and meat preparations .....	1,525	35	1,560	1,902	26	1,928
02	Milk and cream .....	2,838	7	2,845	2,844	2	2,846
	Other food .....	23,830	3,552	27,381	25,629	3,911	29,540
85	Footwear, gaiters and similar articles and parts therefor .....	8,470	403	8,873	9,136	509	9,645
82	Furniture .....	2,764	232	2,997	3,406	396	3,802
59	Insecticides, fungicides and similar products .....	3,305	316	3,621	2,804	121	2,924
	Machinery—						
72	Electrical machinery, apparatus and appli- ances—						
	Domestic electrical—						
	Cooking and heating .....	3,772	41	3,813	4,031	55	4,086
	Refrigerators and parts .....	5,014	203	5,218	5,274	351	5,625
	Washing machines and parts .....	3,230	23	3,253	3,169	68	3,236
	Other .....	2,115	252	2,368	2,107	272	2,379
	Electric power machinery and switchgear .....	5,858	5,024	10,882	8,192	3,906	12,098
	Telecommunication apparatus .....	14,292	1,453	15,745	16,173	2,787	18,960
	Wire and cable, insulated .....	6,814	455	7,269	7,081	449	7,530
	Other .....	5,620	1,719	7,340	7,642	2,759	10,401
71	Other than electric—						
	Agricultural—						
	Tractors .....	2,695	6,842	9,538	818	4,775	5,593
	Other .....	11,187	718	11,905	9,197	714	9,911
	Excavating, levelling, tamping and boring, for earth, minerals or ores .....	6,588	8,545	15,132	7,403	10,126	17,528
	Internal combustion engines .....	2,816	7,095	9,910	2,796	6,089	8,884
	Other .....	28,600	18,892	47,492	38,795	16,787	55,583
54	Medicinal and pharmaceutical products .....	10,468	315	10,783	14,276	325	14,602
69	Metal manufactures, n.e.i.—						
	Household equipment of base metals .....	3,271	284	3,554	4,083	386	4,470
	Tools .....	3,983	1,618	5,601	4,996	1,883	6,880
	Other .....	16,988	2,266	19,255	28,107	2,259	22,367
	Metals—						
67	Iron and steel—						
	Pig, ingot and other primary forms .....	11,683	101	11,784	11,429	84	11,513
	Other .....	40,353	4,977	45,330	35,388	5,073	40,461
68	Non-ferrous .....	10,042	255	10,297	12,122	278	12,400
64	Paper, paperboard and manufactures thereof .....	10,997	3,527	14,524	11,605	3,617	15,222
33	Petroleum and petroleum products .....	3,140	33,995	37,135	3,581	34,947	38,528
89	Plastic articles, n.e.i. .....	5,204	276	5,480	5,564	280	5,844
58	Plastic materials, regenerated cellulose and artificial resins .....	4,987	1,470	6,457	5,531	1,337	6,867
86	Scientific, medical, optical and photographic equipment .....	6,121	1,786	7,907	7,254	2,257	9,511
00	Sheep, live .....	3,126	....	3,126	1,104	....	1,104
65	Textile yarn, fabrics, made-up articles and related products .....	18,189	8,870	27,059	18,425	9,105	27,530
12	Tobacco and tobacco manufactures .....	13,912	284	14,196	13,892	224	14,116
73	Transport equipment—						
	Road motor vehicles and components .....	71,090	14,853	85,944	72,642	15,282	87,924
	Other .....	15,979	13,159	29,138	12,178	10,995	23,173
62	Tyres and tubes .....	10,281	5,098	15,379	10,266	2,964	13,230
	All other commodities .....	51,557	34,677	86,234	60,640	35,290	95,930
	TOTAL .....	527,052	206,980	734,031	562,312	203,533	765,846

(a) Less than \$500.

The principal imports from each of the Australian States and the Northern Territory are given in the following table.

VALUE OF PRINCIPAL IMPORTS FROM AUSTRALIAN STATES—SELECTED COMMODITIES (\$'000)

Division	Description	1967-68	1968-69						
		Total	N.S.W. (a)	Vic.	Qld	S.A.	Tas.	N.T.	Total
11	Beverages, alcoholic .....	3,856	1,087	1,253	15	2,267	15	....	4,636
51	Chemical elements and compounds .....	5,102	1,823	820	29	779	366	....	3,817
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	37,037	13,518	24,207	979	656	80	1	39,441
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—								
	Soap and cleansing preparations .....	4,969	4,233	983	1	45	....	....	5,263
	Toilet preparations (except soaps) .....	5,273	4,686	1,559	(b)	387	....	....	6,632
04	Food—								
06, 07	Cereals and cereal preparations .....	4,415	3,347	1,928	203	417	50	....	5,946
05	Confectionery .....	5,160	1,399	1,858	....	235	1,426	....	4,918
	Fruit—								
	Dried .....	812	25	484	....	365	2	....	875
	Fresh .....	930	325	(b)	58	83	1	....	468
	Other .....	2,437	30	1,186	788	261	118	....	2,383
01	Meat and meat preparations .....	1,525	373	1,352	109	69	....	....	1,902
02	Milk and cream .....	2,838	1,135	1,696	(b)	13	....	1	2,844
	Other food .....	28,135	6,473	14,354	6,335	1,897	1,005	6	30,071
85	Footwear, gaiters and similar articles and parts therefor .....	8,470	2,397	5,689	364	681	6	....	9,136
82	Furniture .....	2,764	1,119	1,284	3	949	51	(b)	3,406
66	Glass and glassware .....	2,532	1,497	1,365	(b)	75	(b)	(b)	2,937
59	Insecticides, fungicides, etc. ....	3,305	2,259	499	26	20	....	....	2,804
72	Machinery—								
	Electrical machinery, apparatus and appliances—								
	Batteries .....	1,675	1,214	577	....	122	....	....	1,913
	Domestic electrical—								
	Cooking and heating .....	3,772	2,194	1,435	9	393	(b)	....	4,031
	Refrigerators and parts .....	5,014	2,077	1,860	(b)	1,337	(b)	....	5,274
	Washing machines and parts .....	3,230	1,548	230	....	1,391	....	....	3,169
	Electric power machinery and switchgear .....	5,858	3,567	3,331	286	1,006	(b)	1	8,192
	Telecommunication apparatus—								
	Radio broadcast receivers .....	2,133	1,453	514	4	322	....	....	2,294
	Television receivers .....	3,302	1,585	1,000	....	394	....	....	2,978
	Other .....	8,857	4,242	5,112	19	1,527	(b)	....	10,901
	Wire and cable, insulated .....	6,814	2,783	3,870	1	426	....	....	7,081
	Other .....	6,060	4,021	3,244	5	536	30	....	7,835
71	Other than electric—								
	Agricultural—								
	Tractors .....	2,695	116	651	....	51	....	....	818
	Other .....	11,187	1,226	5,950	79	1,943	(b)	....	9,197
	Excavating, levelling, tamping and boring, for earth, minerals or ores .....	6,588	3,290	3,858	157	97	....	....	7,403
	Other .....	31,416	20,270	16,709	1,042	3,528	28	15	41,591
54	Medicinal and pharmaceutical products .....	10,468	8,843	5,011	15	407	1	....	14,276
67	Metals—								
	Iron and steel—								
	Pig, ingot and other primary forms .....	11,683	4,956	15	....	6,412	46	....	11,429
	Other .....	40,353	29,665	1,270	15	4,435	2	1	35,388
68	Non-ferrous .....	10,042	8,622	2,125	96	348	931	....	12,122
64	Paper, paperboard and manufactures thereof .....	10,997	3,514	4,252	226	1,126	2,487	....	11,605
33	Petroleum and petroleum products .....	3,140	446	3,096	4	35	....	....	3,581
53	Pigments, paints, varnishes, etc. ....	3,120	2,174	1,128	81	338	1	(b)	3,722
58	Plastic materials, regenerated cellulose and artificial resins .....	4,987	2,606	2,629	174	122	....	....	5,531
86	Scientific, medical, optical and photographic equipment .....	6,121	4,018	3,048	40	147	2	....	7,254
00	Sheep, live .....	3,126	407	73	1	593	30	....	1,104
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics .....	8,355	2,983	4,637	64	386	204	....	8,274
	Floor coverings and the like .....	3,814	1,191	2,829	(b)	27	43	....	4,090
	Other .....	6,020	2,070	3,087	10	819	75	....	6,061
12	Tobacco and tobacco manufactures .....	13,912	2,430	11,427	7	27	....	....	13,892
69	Tools .....	3,983	2,108	2,452	83	237	118	(b)	4,996
73	Transport equipment—								
	Road motor vehicles and components .....	71,090	11,926	39,894	2,365	18,353	103	(b)	72,642
	Other .....	15,979	9,931	1,430	477	339	....	....	12,178
62	Tyres and tubes .....	10,281	3,559	6,373	18	315	....	(b)	10,266
	All other commodities .....	71,419	40,993	32,209	2,921	6,533	293	798	83,746
	TOTAL .....	527,052	237,753	235,842	17,111	63,268	7,514	824	562,312

(a) Includes the value of imports from the Australian Capital Territory.

(b) Less than \$500.

The value of overseas imports into Western Australia of selected commodities from the principal countries of origin is given in the table below for 1968-69.

VALUE OF OVERSEAS IMPORTS FROM PRINCIPAL COUNTRIES OF ORIGIN  
SELECTED COMMODITIES: 1968-69  
(\$'000)

Division	Description	Canada	Germany, Federal Republic of	Italy	Japan	United Kingdom	United States of America	Other	Total
11	Beverages, alcoholic .....	6	8	43	1	684	5	123	870
51	Chemical elements and compounds—								
	Inorganic .....	118	93	(a)	1,288	499	422	563	2,983
	Organic .....	85	218	15	4,077	143	165	432	5,134
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	1	21	27	48	258	3	158	515
27	Crude fertilisers and crude minerals—								
	Fertilisers .....					1	788	(b)8,734	9,522
	Sulphur and unroasted iron pyrites .....	2,737					1,063	1,702	5,503
57	Explosives and pyrotechnic products .....		1		(a)	6	508	28	543
56	Fertilisers, manufactured .....	145	197		525	59	402	52	1,379
03	Fish, fresh, chilled or frozen .....	10	88		212	231	2	693	1,236
66	Glass and glassware .....	1	105	44	139	287	108	419	1,103
67	Iron and steel—								
	Bars, rods, angles, shapes and sections	30			27	303	41	136	537
	Tubes, pipes and fittings .....	58	116	20	2,228	333	225	145	3,125
72	Machinery—								
	Electrical machinery, apparatus and appliances—								
	Electric power machinery and switchgear—								
	Generators .....	2	214	2	59	783	192	37	1,288
	Motors .....	(a)	21	(a)	152	593	73	28	867
	Other .....	72	43	23	40	709	164	958	2,008
	Telecommunication apparatus .....	(a)	1,019	106	668	385	427	181	2,787
71	Other than electric—								
	Excavating, levelling, tamping and boring, for earth, minerals or ores	69	1,524	52	1,572	781	5,999	129	10,126
	Lifting, handling, loading or unloading	11	35	195	531	380	812	398	2,361
	Metal working .....		156	93	188	443	18	240	1,138
	Office .....	32	227	24	117	270	169	60	898
	Power generating machinery—								
	Internal combustion engines .....	72	94	28	184	4,574	918	219	6,089
	Other .....	(a)	13		2	2,090	59	53	2,216
	Taps, cocks, valves, etc. ....	19	15	1	19	411	242	62	768
	Textile and leather .....	6	57	52	75	182	92	261	725
	Tractors .....	47	128	250	29	1,841	2,359	122	4,775
69	Metal manufactures, n.e.i.—								
	Cutlery .....	5	26	15	123	80	1	14	264
	Tools .....	44	137	18	95	595	736	259	1,883
89	Miscellaneous manufactured articles, n.e.i.—								
	Books, newspapers, journals, etc. ....	1	25	15	15	1,964	399	104	2,522
	Toys .....	7	5	11	138	199	14	174	549
93	Outside packages, n.e.i. ....	72	186	51	1,092	736	335	641	3,113
64	Paper and paperboard—								
	Newsprint .....	1,293			(a)			1,000	2,293
	Other .....	115	45	4	123	326	90	344	1,047
33	Petroleum and petroleum products .....		14		(a)	64	230	(c)34,639	34,947
58	Plastic materials, regenerated cellulose and artificial resins .....	35	111	58	139	730	123	141	1,337
25	Pulp and waste paper .....	95						266	361
86	Scientific, medical, optical and photo- graphic equipment .....	61	223	33	27	737	625	551	2,257
07	Tea .....		(a)		(a)	4		(d)1,586	1,590
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics .....	13	119	34	1,263	637	99	1,728	3,893
	Floor coverings and the like .....	52	7	3	64	649	526	539	1,840
	Sacks and bags .....				510		(a)	(e)2,229	2,738
24	Timber .....		1			1	200	2,338	2,539
73	Transport equipment—								
	Aircraft and parts, n.e.i. ....	4	7	205		63	106	53	438
	Railway vehicles .....	6	152		51	225	296	64	794
	Road motor vehicles and components	486	1,342	1,756	5,337	3,401	2,751	209	15,282
	Road vehicles, other than motor vehicles		181	8	290	60	143	24	705
62	Tyres and tubes .....	(a)	44	70	286	1,248	815	502	2,966
	All other commodities .....	1,889	3,190	1,558	6,097	12,897	15,200	10,845	51,677
	TOTAL .....	7,700	10,208	4,814	27,827	40,860	37,946	(f)74,179	203,533

(a) Less than \$500. (b) Includes Christmas Island (Indian Ocean), \$2.91 million; and Nauru, \$5.21 million. (c) Includes Iran, \$6.01 million; Kuwait, \$12.4 million; Qatar, \$6.58 million; Singapore, \$4.00 million; Republic of South Yemen, \$2.44 million; and Trucial States, Muscat and Oman, \$2.43 million. (d) Includes Ceylon, \$1.06 million. (e) Includes Pakistan, \$2.10 million. (f) Includes an amount of \$45.1 million representing the value of imports detailed in footnotes (b), (c), (d) and (e).

## EXPORTS

QUANTITY AND VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA  
SELECTED COMMODITIES: 1968-69

Division	Description	Unit	Interstate		Overseas		Total	
			Quantity	Value	Quantity	Value	Quantity	Value
00	Animals (live)—			\$'000		\$'000		\$'000
	Cattle .....	number	12,230	890	301	82	12,531	972
	Sheep .....	number	201,274	797	316,165	2,146	517,439	2,943
51	Chemical elements and compounds .....	n.a.	n.a.	8,540	n.a.	25,603	n.a.	34,142
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	n.a.	n.a.	813	n.a.	74	n.a.	887
	Food—							
04	Cereals and cereal preparations—							
	Barley, unmilled .....	'000 bush	(a)	(a)	4,818	4,687	4,818	4,687
	Flour of wheat .....	sh. ton (b)	1,572	159	37,119	2,273	38,691	2,433
	Oats, unmilled .....	'000 bush	24	30	12,852	9,104	12,876	9,134
	Wheat, unmilled .....	'000 bush	(a)	(a)	55,901	77,987	55,901	77,987
	Other .....	cental (c)	17,295	128	93,699	474	110,994	601
03	Fish, fresh, chilled or frozen—							
	Rock lobster tails .....	'000 lb	168	485	6,530	16,648	6,698	17,133
	Other .....	'000 lb	434	276	2,428	2,927	2,862	3,203
05	Fruit and vegetables—							
	Fruit, fresh—							
	Apples .....	'000 bush	1	12	1,707	5,770	1,708	5,781
	Other .....	n.a.	n.a.	6	n.a.	767	n.a.	773
	Vegetables, fresh .....	n.a.	n.a.	904	n.a.	1,395	n.a.	2,298
01	Meat, fresh, chilled or frozen—							
	Beef and veal .....	'000 lb	138	71	44,417	16,868	44,555	16,939
	Lamb .....	'000 lb	345	78	8,827	1,508	9,173	1,586
	Mutton .....	'000 lb	196	22	38,082	5,610	38,278	5,632
	Pigmeat .....	'000 lb	1,234	494	182	70	1,416	564
	Other (d) .....	'000 lb	585	174	8,735	1,545	9,320	1,719
	Other food .....	n.a.	n.a.	2,308	n.a.	2,251	n.a.	4,559
85	Footwear, gaiters and similar articles .....	n.a.	n.a.	1,559	n.a.	4	n.a.	1,563
82	Furniture .....	n.a.	n.a.	1,455	n.a.	74	n.a.	1,529
99	Gold bullion .....	'000 fine oz	361	12,701	n.a.	n.a.	361	12,701
21	Hides, skins and fur skins, undressed—							
	Bovine .....	'000 lb	2,239	344	8,518	1,272	10,758	1,616
	Sheep and lamb .....	'000 lb	755	113	17,185	4,000	17,940	4,113
	Other .....	n.a.	n.a.	170	n.a.	115	n.a.	285
67	Iron and steel (e) .....	'000 tons	280	15,971	273	11,031	553	27,002
	Machinery—							
72	Electric power machinery and switchgear .....	n.a.	n.a.	1,000	n.a.	12	n.a.	1,013
71	Other than electric—							
	Agricultural—							
	Tractors .....	n.a.	n.a.	5,965	n.a.	142	n.a.	6,107
	Other .....	n.a.	n.a.	1,066	n.a.	44	n.a.	1,110
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	n.a.	n.a.	498	n.a.	309	n.a.	807
	Other .....	n.a.	n.a.	6,658	n.a.	1,516	n.a.	8,174
28	Metalliferous ores and metal scrap—							
	Ores, metalliferous—							
	Ilmenite .....	'000 tons	53	527	495	5,224	548	5,751
	Iron .....	'000 tons	2,718	7,660	16,866	144,137	19,584	151,797
	Manganese .....	'000 tons	1	49	175	3,575	176	3,624
	Tin .....	'000 cwt	2	208	18	1,634	21	1,843
	Other .....	'000 cwt	1	3	769	10,184	770	10,187
	Metal waste and scrap—							
	Ferrous .....	'000 cwt	6	20	519	588	525	609
	Non-ferrous .....	'000 cwt	92	2,088	15	570	107	2,659
64	Paper, paperboard and manufactures thereof .....	n.a.	n.a.	1,054	n.a.	302	n.a.	1,356
33	Petroleum and petroleum products .....	n.a.	n.a.	43,580	n.a.	3,759	n.a.	47,338
53	Pigments, paints, varnishes, etc. ....	n.a.	n.a.	306	n.a.	1,812	n.a.	2,118
62	Rubber manufactures, n.e.i. ....	n.a.	n.a.	1,834	n.a.	41	n.a.	1,876
68	Silver bullion .....	'000 fine oz	n.a.	n.a.	3,160	5,488	3,160	5,488
41	Tallow .....	'000 cwt	6	31	379	1,855	385	1,886
26	Textile fibres and their waste—							
	Cotton fibre .....	'000 lb	5,210	1,250	3,338	813	8,548	2,064
	Wool—							
	Degreased (washed, scoured, etc.) .....	'000 lb	1,416	800	25,820	15,084	27,236	15,885
	Greasy (including slips) .....	'000 lb	18,130	10,143	272,955	131,922	291,085	142,065
	Other .....	'000 lb	146	128	2,556	2,423	2,702	2,551
24	Timber—							
	Sleepers, railway .....	'000 sup. ft	7,208	890	2,860	461	10,068	1,351
	Other .....	'000 sup. ft	17,812	2,152	9,392	1,565	27,203	3,717
73	Transport equipment .....	n.a.	n.a.	2,841	n.a.	3,102	n.a.	5,943
63	Veneers, plywood boards and reconstituted wood .....	n.a.	n.a.	2,115	n.a.	66	n.a.	2,181
	All other commodities .....	n.a.	n.a.	8,524	n.a.	15,454	n.a.	23,977
	TOTAL .....	n.a.	n.a.	149,892	n.a.	546,366	n.a.	696,258

n.a. denotes 'not applicable' or 'not available'.

(a) Less than 500. (b) Short ton = 2,000 lb. (c) Cental = 100 lb. (d) Includes edible offals, poultry and rabbits.

(e) Principally pig-iron, cast iron, basic shapes and sections.



#### LOADING IRON ORE

Two giant ore carriers at Port Hedland are shown loading iron ore from Mount Whaleback for shipment to Japan. The amount of ore shipped in a single vessel at times exceeds 100,000 tons.

*Photograph by courtesy of Mt Newman Mining Co. Pty. Limited*



The following table shows the value and proportion of the principal items exported overseas and interstate during 1968-69.

VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA  
SELECTED COMMODITIES: 1968-69

Division	Description	Value (\$'000)			Proportion of total (per cent)		
		Interstate	Overseas	Total	Interstate	Overseas	Total
00	Animals (live)—						
	Cattle .....	890	82	972	0.59	0.02	0.14
	Sheep .....	797	2,146	2,943	0.53	0.39	0.42
51	Chemical elements and compounds .....	8,540	25,603	34,142	5.70	4.69	4.90
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	813	74	887	0.54	0.01	0.13
	Food—						
04	Cereals and cereal preparations—						
	Barley, unmilled .....	(a)	4,687	4,687	(b)	0.86	0.67
	Flour of wheat .....	159	2,273	2,433	0.11	0.42	0.35
	Oats, unmilled .....	30	9,104	9,134	0.02	1.67	1.31
	Wheat, unmilled .....	(a)	77,987	77,987	(b)	14.27	11.20
	Other .....	128	474	601	0.08	0.09	0.09
03	Fish, fresh, chilled or frozen—						
	Rock lobster tails .....	485	16,648	17,133	0.32	3.05	2.46
	Other .....	276	2,927	3,203	0.18	0.54	0.46
05	Fruit and vegetables—						
	Fruit, fresh—						
	Apples .....	12	5,770	5,781	0.01	1.06	0.83
	Other .....	6	767	773	(b)	0.14	0.11
	Vegetables, fresh .....	904	1,395	2,298	0.60	0.26	0.33
01	Meat, fresh, chilled or frozen—						
	Beef and veal .....	71	16,868	16,939	0.05	3.09	2.43
	Lamb .....	78	1,508	1,586	0.05	0.28	0.23
	Mutton .....	22	5,610	5,632	0.02	1.03	0.81
	Pigmeat .....	494	70	564	0.33	0.01	0.08
	Other (c) .....	174	1,545	1,719	0.12	0.28	0.25
	Other food .....	2,308	2,251	4,559	1.54	0.41	0.66
85	Footwear, gaiters and similar articles....	1,559	4	1,563	1.04	(b)	0.22
82	Furniture .....	1,455	74	1,529	0.97	0.01	0.22
99	Gold bullion .....	12,701	....	12,701	8.47	....	1.82
21	Hides, skins and fur skins, undressed—						
	Bovine .....	344	1,272	1,616	0.23	0.23	0.23
	Sheep and lamb .....	113	4,000	4,113	0.08	0.73	0.59
	Other .....	170	115	285	0.11	0.02	0.04
67	Iron and steel (d) .....	15,971	11,031	27,002	10.66	2.02	3.88
	Machinery—						
72	Electric power machinery and switchgear ....	1,000	12	1,013	0.67	(b)	0.14
71	Other than electric—						
	Agricultural—						
	Tractors .....	5,965	142	6,107	3.98	0.03	0.88
	Other .....	1,066	44	1,110	0.71	0.01	0.16
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	498	309	807	0.33	0.06	0.12
	Other .....	6,658	1,516	8,174	4.44	0.28	1.17
28	Metalliferous ores and metal scrap—						
	Ores, metalliferous—						
	Ilmenite .....	527	5,224	5,751	0.35	0.96	0.83
	Iron .....	7,660	144,137	151,797	5.11	26.38	21.80
	Manganese .....	49	3,575	3,624	0.03	0.65	0.52
	Tin .....	208	1,634	1,843	0.14	0.30	0.27
	Other .....	3	10,184	10,187	(b)	1.86	1.46
	Metal waste and scrap—						
	Ferrous .....	20	588	609	0.01	0.11	0.09
	Non-ferrous .....	2,088	570	2,659	1.39	0.10	0.38
64	Paper, paperboard and manufactures thereof .....	1,054	302	1,356	0.70	0.06	0.20
33	Petroleum and petroleum products .....	43,580	3,759	47,338	29.07	0.69	6.80
53	Pigments, paints, varnishes, etc. ....	306	1,812	2,118	0.20	0.33	0.30
62	Rubber manufactures, n.e.l. ....	1,834	41	1,876	1.22	0.01	0.27
68	Silver bullion .....	....	5,488	5,488	....	1.00	0.79
41	Tallow .....	31	1,855	1,886	0.02	0.34	0.27
26	Textile fibres and their waste—						
	Cotton fibre .....	1,250	813	2,064	0.83	0.15	0.30
	Wool—						
	Degreased (washed, scoured, etc.) .....	800	15,084	15,885	0.53	2.76	2.28
	Greasy (including stipe) .....	10,143	131,922	142,065	6.77	24.14	20.40
	Other .....	128	2,423	2,551	0.08	0.44	0.37
24	Timber—						
	Sleepers, railway .....	890	461	1,351	0.59	0.08	0.19
	Other .....	2,152	1,565	3,717	1.44	0.29	0.53
73	Transport equipment .....	2,841	3,102	5,943	1.90	0.57	0.85
63	Veneers, plywood boards and reconstituted wood .....	2,115	66	2,181	1.41	0.01	0.31
	All other commodities .....	8,524	15,454	23,977	5.69	2.83	3.44
	TOTAL .....	149,892	546,366	696,258	100.00	100.00	100.00

(a) Less than \$500. (b) Less than 0.005 per cent. (c) Includes edible offals, poultry and rabbits. (d) Principally pig-iron, cast iron, basic shapes and sections.

**VALUE OF PRINCIPAL EXPORTS TO AUSTRALIAN STATES—SELECTED COMMODITIES**  
(\$'000)

Division	Description	1967-68	1968-69					
		Total	N.S.W. (a)	Vic.	Qld	S.A.	Tas.	N.T.
00	Animals (live)—							
	Cattle .....	1,148	7	....	34	184	....	665
	Sheep .....	72	6	13	....	778	....	....
51	Chemical elements and compounds .....	7,233	1,622	6,262	376	272	....	8
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	810	284	151	85	230	6	57
29	Crude animal and vegetable materials, n.e.i.—							
	Animal casings (sausage), etc. ....	175	95	4	4	54	....	....
	Clover seed .....	547	209	103	(b)	206	....	....
	Food—							
02	Butter .....	216	....	....	....	....	....	250
06	Confectionery, excluding chocolate .....	358	114	154	63	46	12	2
03	Fish and fish preparations—							
	Fresh, chilled or frozen .....	396	581	146	....	34	....	(b)
	Canned or bottled, n.e.i., and fish preparations .....	572	161	162	23	63	....	(b)
01	Meat and meat preparations—							
	Fresh, chilled or frozen .....	768	16	462	....	31	....	329
	Other .....	221	....	9	....	8	....	282
05	Vegetables, fresh—							
	Potatoes (except sweet potatoes) ....	371	181	90	7	247	....	35
	Other .....	365	3	36	1	295	....	9
	Other food .....	1,989	191	188	13	404	3	494
85	Footwear, gaiters and similar articles .....	1,466	554	633	126	191	46	9
82	Furniture .....	1,387	362	452	315	240	18	69
99	Gold bullion .....	11,816	12,701	....	....	....	....	....
21	Hides, skins and fur skins, undressed—							
	Bovine .....	454	161	77	....	106	....	....
	Sheep and lamb .....	31	(b)	104	....	9	....	....
	Other .....	70	132	21	9	8	....	....
	Machinery—							
72	Electrical machinery and apparatus—							
	Electric power machinery (c) ....	960	150	681	2	168	....	....
	Other .....	147	28	100	23	51	1	3
71	Other than electric—							
	Agricultural—							
	Tractors .....	5,934	2,157	1,595	1,002	1,211	....	....
	Other .....	1,473	333	156	330	245	(b)	2
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	610	106	188	174	10	6	15
28	Other .....	3,099	2,426	2,090	1,000	883	139	120
	Metalliferous ores and metal scrap—							
	Ores, metalliferous—							
	Ilmenite .....	487	....	....	....	....	527	....
	Iron .....	7,875	7,660	....	....	....	....	....
	Manganese .....	23	49	....	....	....	....	....
	Tin .....	787	208	....	....	....	....	....
	Other .....	7	3	....	....	....	....	....
	Metal waste and scrap—							
	Ferrous .....	16	2	....	....	....	....	19
	Non-ferrous .....	1,922	1,439	421	....	229	....	....
69	Metal manufactures, n.e.i.—							
	Household equipment of base metals .....	344	28	58	29	138	5	3
	Other .....	1,145	470	381	36	559	2	257
	Metals—							
67	Iron and steel (d) .....	9,313	7,353	4,369	488	3,368	11	382
68	Silver bullion .....	558	....	....	....	....	....	....
33	Petroleum and petroleum products .....	37,011	10,029	17,986	1,191	10,402	1,561	2,411
62	Rubber manufactures, n.e.i. ....	707	1,004	556	63	191	10	11
26	Textile fibres and their waste—							
	Cotton fibre .....	2,045	1,220	....	....	30	....	....
	Wool—							
	Degreased (washed, scoured, etc.)....	521	....	559	....	241	....	....
	Greasy (including slipe) .....	5,704	48	6,588	....	3,405	102	....
	Other .....	131	....	9	....	119	....	....
24	Timber—							
	Sleepers, railway .....	1,012	....	....	....	890	....	....
	Other .....	2,054	155	300	1	1,433	....	262
73	Transport equipment—							
	Road motor vehicles (e) .....	570	213	153	114	125	7	13
	Other .....	499	292	174	138	821	13	779
63	Wood and cork manufactures (f)—							
	Veneers, plywood boards, etc. ....	1,404	453	1,122	....	444	34	62
	Cork manufactures .....	525	163	117	133	17	....	....
	Other .....	58	(b)	45	9	(b)	....	24
	All other commodities .....	7,100	1,325	2,363	437	1,573	87	775
	<b>TOTAL</b> .....	<b>124,505</b>	<b>54,692</b>	<b>49,079</b>	<b>6,224</b>	<b>29,958</b>	<b>2,590</b>	<b>7,348</b>
								<b>149,892</b>

(a) Includes the value of exports to the Australian Capital Territory.

(b) Less than \$500.

(c) Including switchgear.

(d) Principally pig-iron, cast iron, basic shapes and sections.

(e) Including components.

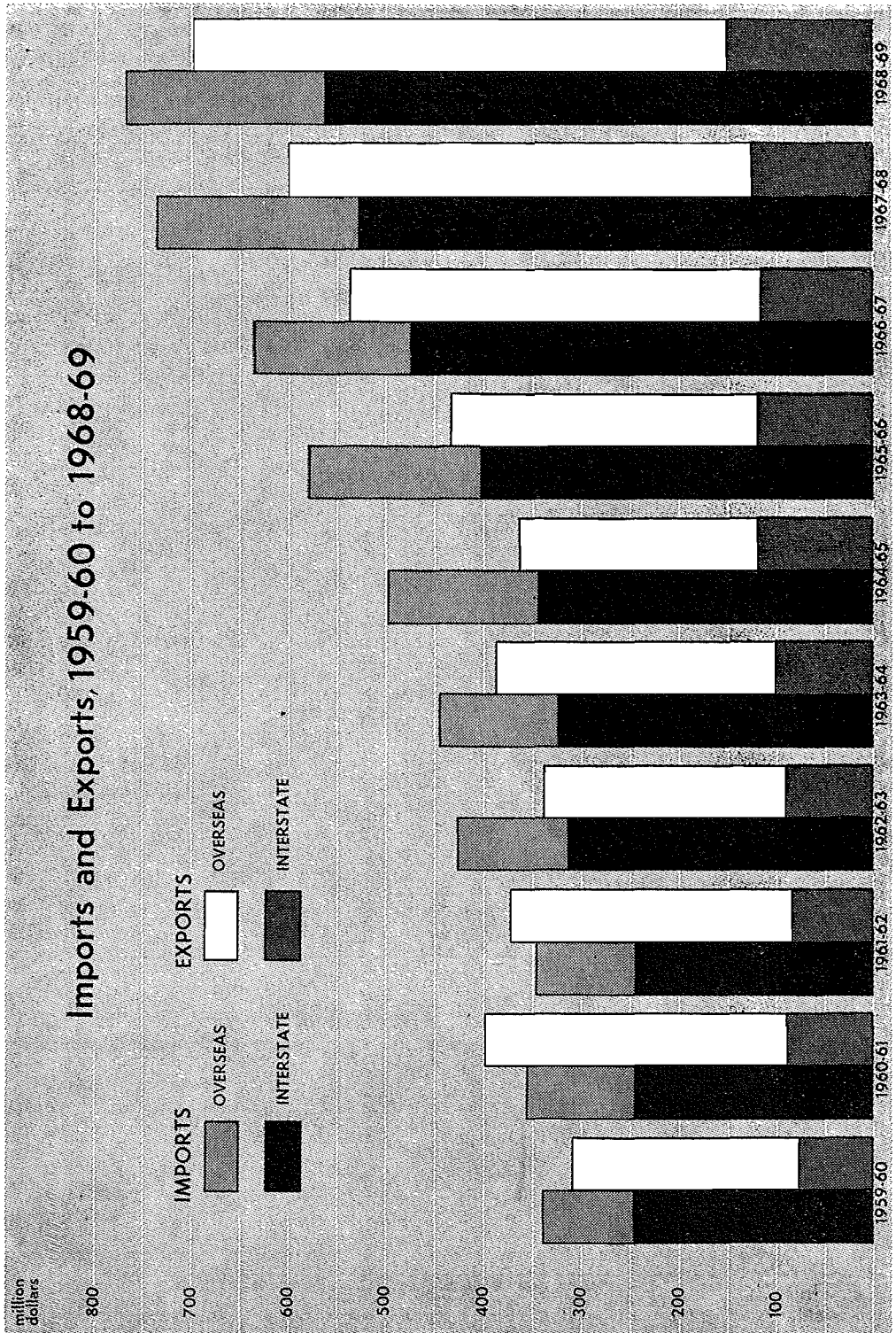
(f) Excluding furniture.

The following table shows the value of overseas exports during 1968-69, classified according to commodity and main countries of destination. For further analysis of Western Australia's exports of principal commodities according to destination the reader is referred to the annual mimeographed publication *External Trade* compiled and issued free of charge by the Western Australian Office of the Bureau of Census and Statistics.

VALUE OF OVERSEAS EXPORTS TO PRINCIPAL COUNTRIES OF DESTINATION  
SELECTED COMMODITIES: 1968-69  
(\$'000)

Division	Description	France	Germany, Federal Republic of	Italy	Japan	United Kingdom	United States of America	Other	Total
29	Animal casings (sausage) and the like...	2	4	31	65	119	56	118	395
41	Animal oils and fats—								
	Tallow .....	13	7	...	318	8	...	1,510	1,855
	Other .....	1	4	...	...	354	216	7	582
55	Essential oils, perfume and flavour materials .....	49	12	37	2	15	18	89	221
04	Food—								
	Cereals and cereal preparations—								
	Barley, unmilled .....	...	...	...	1,333	703	...	2,652	4,687
	Cereal preparations .....	...	...	...	291	...	...	136	427
	Oats, unmilled .....	...	2,210	1,342	627	846	...	(a)4,079	9,104
	Wheat, unmilled .....	...	...	...	29,148	2,026	...	(b)46,812	77,987
02	Cheese and curd .....	...	...	...	...	132	...	3	135
08	Feeding-stuff for animals .....	...	...	...	208	1	...	312	520
03	Fish, fresh, chilled or frozen—								
	Prawns .....	(c)	11	...	1,654	195	229	79	2,167
	Rock lobsters—								
	Tails .....	19	...	...	(c)	...	16,552	77	16,648
	Whole .....	522	2	...	...	6	6	205	741
05	Fruit—								
	Currants .....	...	...	...	...	3	...	452	455
	Fresh—								
	Apples .....	...	1,215	...	...	2,584	...	1,971	5,770
	Other .....	...	...	...	...	2	...	765	767
06	Honey .....	...	37	...	22	87	...	310	456
01	Meat, fresh, chilled or frozen—								
	Beef and veal....	...	...	...	542	270	14,052	2,003	16,868
	Lamb .....	...	...	...	3	1,104	44	357	1,508
	Mutton .....	102	13	...	1,634	182	647	3,031	5,610
	Other .....	33	74	3	232	609	32	632	1,615
	Other food .....	...	...	...	80	114	7	4,216	4,418
21	Hides, skins and fur skins, undressed—								
	Bovine .....	...	47	21	235	13	...	955	1,272
	Sheep and lamb .....	2,484	295	690	3	223	3	302	4,000
51	Inorganic elements and compounds .....	...	...	...	10,340	...	15,160	8	25,507
67	Iron and steel—								
	Pig, ingot and other primary forms....	9	150	56	8,503	18	...	831	9,568
	Other .....	...	...	...	...	...	1,362	102	1,464
61	Leather .....	...	...	...	...	86	(c)	147	234
71	Machinery, other than electric—								
	Excavating, levelling, tamping and boring, for earth, minerals or ores	...	...	...	...	1	8	556	566
	Power generating .....	...	...	...	(c)	24	11	237	272
	Other .....	...	1	1	30	43	44	1,053	1,173
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Copper....	...	...	...	630	...	...	...	630
	Ilmenite .....	1,267	223	100	908	1,992	619	115	5,224
	Iron .....	1,921	5,961	5,406	120,465	2,619	2,360	5,405	144,137
	Lead and zinc .....	...	...	...	157	...	4	...	161
	Manganese .....	...	...	...	3,575	...	...	...	3,575
	Tin .....	...	...	...	...	2	17	1,615	1,634
	Other .....	41	36	2	5,251	110	591	3,363	9,393
	Metal waste and scrap—								
	Ferrous .....	...	48	...	513	...	...	28	588
	Non-ferrous .....	...	7	3	70	410	23	56	570
22	Oil-seeds, oil nuts and oil kernels .....	...	...	...	819	...	...	1	820
33	Petroleum and petroleum products .....	(c)	(c)	...	...	2	(c)	(d)3,756	3,759
73	Road motor vehicles and components....	(c)	(c)	(c)	(c)	154	7	212	374
68	Silver bullion .....	...	...	...	...	5,488	...	...	5,488
24	Timber—								
	Sleepers, railway .....	...	...	...	...	216	...	246	461
	Other .....	...	69	...	2	805	14	675	1,565
26	Wool—								
	Degreased (washed, scoured, etc.) .....	375	2,102	1,251	56	2,739	3,748	4,814	15,084
	Greasy (including slupe) .....	13,314	13,072	6,442	37,055	12,118	8,079	(e)41,842	131,922
	Other .....	...	233	41	25	190	63	1,870	2,423
	All other commodities .....	45	132	113	1,852	993	2,302	16,131	21,567
	TOTAL .....	20,197	25,964	15,539	226,649	37,605	66,275	154,138 (f)	546,366

(a) Includes Netherlands, \$3.18 million. (b) Includes China (mainland), \$29.9 million; India, \$3.97 million; and Malaysia, \$3.51 million. (c) Less than \$500. (d) Includes New Zealand, \$2.41 million. (e) Includes Belgium-Luxembourg, \$3.74 million; Czechoslovakia, \$3.15 million; India, \$3.46 million; Poland, \$5.37 million; and U.S.S.R., \$16.7 million. (f) Includes an amount of \$75.3 million representing the value of exports detailed in footnotes (a), (b), (d) and (e).



## AVERAGE EXPORT VALUES

The following table shows the annual average export values, during the five years ended 30 June 1969, of a number of Western Australia's principal export commodities. The figures are based on *total* exports (interstate and overseas) and represent the value f.o.b. at the point of consignment.

ANNUAL AVERAGE EXPORT VALUES OF SPECIFIED COMMODITIES  
(\$)

Description	Unit	1964-65	1965-66	1966-67	1967-68	1968-69
Apples, fresh .....	bushel	3.49	3.57	3.30	3.37	3.39
Cereals and cereal preparations—						
Barley .....	"	1.05	1.17	1.12	1.05	0.97
Oats .....	"	0.82	0.87	0.82	0.82	0.71
Wheat .....	"	1.41	1.39	1.49	1.40	1.40
Wheaten flour .....	cental (a)	3.21	3.12	3.27	3.19	3.14
Meat, fresh, chilled or frozen—						
Beef .....	lb	0.28	0.30	0.32	0.35	0.38
Lamb .....	"	0.20	0.22	0.21	0.24	0.17
Mutton .....	"	0.17	0.18	0.17	0.16	0.15
Pork .....	"	0.41	0.41	0.38	0.39	0.40
Ores, metalliferous—						
Ilmenite .....	ton	9.82	9.89	10.17	10.20	10.50
Iron .....	"	1.98	(b) 2.66	6.06	7.29	7.75
Manganese .....	"	22.96	23.13	21.95	21.15	20.58
Potatoes .....	cwt	3.30	3.31	2.01	2.41	2.66
Rock lobster tails .....	lb	1.80	1.96	1.73	2.08	2.56
Skins and hides—						
Bovine .....	"	0.13	0.17	0.18	0.13	0.15
Sheep and lamb, with wool .....	"	0.33	0.32	0.30	0.21	0.23
Timber—						
Railway sleepers .....	100 sup. ft	10.30	12.62	12.53	13.73	13.42
Other (c) .....	"	11.40	12.67	12.85	13.80	13.66
Wool—						
Greasy (including slip) .....	lb	0.55	0.53	0.53	0.46	0.49
Degreased (washed, scoured, etc.) .....	"	0.68	0.61	0.60	0.50	0.58

(a) Cental = 100 lb. (b) Prior to 1965-66, when the first large-scale overseas shipments were made, exports of iron ore consisted almost entirely of consignments to New South Wales. (c) Excluding plywood and veneers.

## SHIPS' STORES

The following table shows the quantity and value of ships' stores loaded on board vessels at Western Australian ports during the years 1966-67 to 1968-69. The value of ships' stores is excluded from all tables appearing elsewhere in this Part.

EXPORTS IN THE FORM OF SHIPS' STORES (a)

Description	Unit	1966-67		1967-68		1968-69	
		Quantity	Value	Quantity	Value	Quantity	Value
Beverages, alcoholic .....	'000 gallons	193	\$'000 231	193	\$'000 245	179	\$'000 190
Foodstuffs—							
Fresh, chilled or frozen—							
Eggs in shell .....	'000 dozen	246	155	201	128	174	109
Fish .....	'000 lb	437	278	333	212	297	214
Fruit .....	"	....	156	....	118	....	111
Meat .....	'000 lb	3,418	894	2,123	835	2,393	850
Vegetables .....	"	....	353	....	295	....	276
All other foodstuffs .....	"	....	424	....	369	....	315
Fuel for ships and aircraft—							
Coal .....	ton	1,105	23	1,515	30	4	(b)
Other (bunker oil, etc.) .....	'000 gallons	96,784	7,380	136,506	11,079	129,200	10,882
Lubricants .....	"	....	195	....	282	....	293
All other ships' stores .....	"	....	849	....	1,231	....	1,085
Total (a) .....	n.a.	n.a.	10,936	n.a.	14,824	n.a.	14,327

n.a. denotes 'not applicable'.

(a) Includes interstate ships' stores valued at \$931,492 in 1966-67, \$1,079,145 in 1967-68 and \$1,174,963 in 1968-69. Where the value of overseas ships' stores recorded in any one entry is less than \$100 (1966-67) or \$150 (from 1967-68), the stores concerned are not allocated according to commodity, but are included in the item *All other ships' stores*. (b) Less than \$500.

## OVERSEAS TRADE OF PORTS

The following table shows the value of overseas imports and exports through Western Australian ports during each year from 1966-67 to 1968-69.

VALUE OF OVERSEAS TRADE OF WESTERN AUSTRALIAN PORTS  
(\$'000)

Port	Imports			Exports		
	1966-67	1967-68	1968-69	1966-67	1967-68	1968-69
Port of Fremantle (a) ....	143,156	168,259	176,070	287,202	*285,337	309,097
Other ports—						
Albany ....	2,238	3,130	2,926	30,048	30,337	27,013
Broome ....	216	(b) 7,308	(b) 2,940	2,166	(b) 4,579	5,891
Bunbury (c) ....	2,838	2,977	3,025	21,503	16,811	17,303
Dampier (d) ....	4,965	12,351	7,313	21,972	56,560	95,374
Derby (e) ....	68	166	181	733	1,285	740
Esperance ....	889	1,093	1,415	5,634	8,509	14,358
Port Hedland (f) ....	1,587	7,589	5,753	21,806	38,226	46,370
Wyndham ....	240	(g) ..	(g) ..	2,824	(g) ..	3,441
Other ....	3,193	4,107	3,910	27,437	33,616	26,778
Total ....	16,235	38,720	27,463	134,124	*189,923	237,269
Total, all ports ....	159,390	206,980	203,533	421,325	475,260	546,366

(a) For the purpose of this table, the value of goods received from or consigned to overseas countries as air freight or by parcel post is included in the figures shown for the Port of Fremantle. (b) Includes Wyndham. (c) Includes Busseton. (d) Includes Point Samson. (e) Includes Yampi. (f) Includes Barrow Island. (g) See footnote (b). \* Revised.

The following table shows the total value of Australia's overseas imports and exports, together with the proportion handled at Western Australian ports, during each of the years 1964-65 to 1968-69.

EXTERNAL TRADE OF AUSTRALIA—TOTAL VALUE AND PROPORTION HANDLED  
AT WESTERN AUSTRALIAN PORTS

Year	Value of Australian trade (\$'000)			Proportion handled at Western Australian ports (per cent)		
	Imports	Exports	Total	Imports	Exports	Total
1964-65 ....	2,904,703	2,651,449	5,556,152	5·29	9·17	7·14
1965-66 ....	2,939,492	2,720,953	5,660,445	5·98	11·55	8·66
1966-67 ....	3,045,341	3,023,925	6,069,266	5·23	13·93	9·57
1967-68 ....	3,264,473	3,044,675	6,309,148	6·34	15·61	0·81
1968-69 ....	3,468,505	3,366,073	6,834,578	5·87	16·23	10·97

## CUSTOMS AND EXCISE

## The Customs Tariff

The first Commonwealth Customs Tariff was introduced on 8 October 1901, from which date uniform duties came into effect throughout Australia. The Australian Customs Tariff has been developed in conformity with the policy of protecting economic and efficient Australian industries and of granting preferential treatment to imports from certain countries. Duties are imposed on some goods, generally of a luxury nature, for revenue purposes. Customs collections are a major source of revenue, but in its protective character the tariff has an important influence on the Australian economy.

The particulars appearing in the tables in this section have been extracted from the bulletin *Overseas Trade* published annually by the Commonwealth Statistician, Canberra. The bulletin contains details showing, for each State and Territory, a dissection of customs revenue according to Customs Tariff Division, and excise revenue according to Excise Tariff Item and rate of duty.

**CUSTOMS AND EXCISE—GROSS COLLECTIONS IN WESTERN AUSTRALIA (a)**  
(S'000)

Tariff	1964-65	1965-66	1966-67	1967-68	1968-69
Customs duty (a) ....	10,692	15,251	13,569	19,468	21,202
Excise duty—					
Petroleum products ....	13,185	17,848	20,224	22,105	24,656
Spirits, potable and non-potable ....	615	832	1,019	1,090	1,187
Tobacco, cigars and cigarettes ....	11,351	12,913	13,069	13,885	15,171
Other (b) ....	18,198	21,943	23,864	25,823	28,275
Total, excise (a) (b) ....	43,349	53,536	58,176	62,903	69,289
GRAND TOTAL (b) ....	54,041	68,787	71,745	82,371	90,490

(a) For net collections see page 270.

(b) Includes excise on beer, details of which are not available for publication.

The following table shows the rates of excise duty applying to certain commodities during the period 1 July 1967 to 30 June 1969, the quantities of goods excised in Western Australia at those rates, and the gross amounts of revenue collected. For a more detailed analysis, including particulars for each State and Territory, the reader is referred to the annual bulletin *Overseas Trade* to which reference is made earlier in this section.

**EXCISE DUTY—GROSS COLLECTIONS IN WESTERN AUSTRALIA**  
**CLASSIFIED ACCORDING TO COMMODITY**

Commodity	Unit	Rate of duty	1967-68		1968-69	
			Quantity	Gross collections	Quantity	Gross collections
Beer ....	gal	\$ 1·1375	(a)	\$'000 (a)	(a)	\$'000 (a)
Spirits (potable)—						
Brandy ....	pf gal	8·00	65,565	525	74,578	597
Gin ....	"	11·30	11,152	126	12,869	145
Whisky ....	"	11·10	14,969	166	15,458	172
Rum ....	"	11·30	10,418	118	10,565	119
Liqueurs ....	"	11·40	....	....	115	1
Vodka ....	"	11·20	3,278	36	3,629	40
Flavoured spirituous liquors ....	"	11·20	6,671	75	7,144	80
Other ....	"	11·20	418	5	815	9
Other ....	"	12·20	....	....	8	(c)
Spirits (non-potable) for—						
Fortifying wine ....	"	0·40	61,109	24	58,359	23
Industrial and scientific purposes (b) ....	"	2·50	4,233	10	....	....
Making vinegar (b) ....	"	0·20	10,430	2	....	....
Manufacture of—						
Essences (b) ....	"	1·00 to 1·20	2,754	3	....	....
Scents and toilet preparations (b) ....	"	1·40 to 1·60	104	(c)	....	....
Tobacco—Manufactured ....	lb	0·69	14,402	10	12,543	9
Cigarettes—Machine-made ....	"	2·173	120	(c)	96	(c)
Petroleum products—	"	2·24	569,119	1,275	547,128	1,226
Aviation gasoline ....	"	4·20	3,000,007	12,600	3,318,349	13,937
Gasoline, n.e.i. ....	gal	0·0957	....	....	219,466	21
Aviation turbine kerosene ....	"	0·123	157,155,254	19,342	171,702,694	21,119
Diesel fuel ....	"	0·079	9,741,840	770	11,920,420	942
Cigarette papers and tubes ....	60 papers or tubes	0·125	15,943,210	1,993	20,591,475	2,574
Coal ....	ton	0·0145	5,148,400	75	5,438,900	79
Canned fruit ....	dozen	(d) 0·0333	1,060,200	35	513,277	17
Other ....	n.a.	(e) 0·044	....	....	584,035	26
Total gross collections ....	n.a.	(e) 0·011	....	....	328	(c)
Canned fruit ....	dozen	0·05 to 1·05	45,210	14	99,512	27
Other ....	n.a.	n.a.	n.a.	(f) 25,699	n.a.	(f) 28,126
Total gross collections ....	n.a.	n.a.	n.a.	(f) 62,903	n.a.	(f) 69,289

n.a. denotes 'not applicable'.

(a) Not available for publication.

(b) Free of duty from 17 May 1968.

(c) Less than \$500.

(d) Operative to

31 October 1968.

(e) Operative from 1 November 1968.

(f) Includes excise duty paid on beer; see note (a).

## *Chapter IX—continued*

### **Part 2—Internal Trade**

#### **CENSUS OF RETAIL ESTABLISHMENTS**

Details of the structure and pattern of retail trade throughout Australia are obtained in periodic Censuses of Retail Establishments. To date, censuses have been taken covering the years 1947-48, 1948-49, 1952-53, 1956-57 and 1961-62 and a further census was taken in respect of the year 1968-69 as part of a programme of Integrated Economic Censuses covering the mining, manufacturing, wholesaling and retailing fields. The Integrated Economic Censuses have been a major undertaking involving the development of new concepts, definitions and procedures. For these reasons processing of the statistics has taken considerably longer than usual and detailed figures for 1968-69 are not yet available. Further details relating to the Integrated Economic Censuses appear in the *Appendix* together with a summary of the preliminary results of these censuses.

Each census prior to 1968-69 has covered the retail trading activities of establishments which normally sell goods to the general public from fixed premises such as shops, rooms, kiosks and yards. Retail activities of wholesalers and manufacturers were included, provided these establishments sold regularly by retail to the general public. Sales by itinerant vendors (e.g. hawkers, street sellers, etc.) and sales from casual stalls or booths were excluded. Organisations such as clubs and societies making sales to their own members were excluded from the main census collection, but a supplementary collection was made covering sales by *licensed* clubs. Supplementary collections were also made in respect of motion picture theatres, and laundries and dry cleaners. In general, establishments with total retail sales of less than \$1,000 in the census year were excluded.

The particulars of retail sales obtained from the censuses relate principally to sales to the final consumer of new and second-hand goods generally used for household and personal purposes. For this reason, sales of building materials, farm and industrial machinery and equipment, earthmoving equipment, etc. have been excluded from the censuses. For the same reason, and also because of difficulties in obtaining reliable and complete reporting, sales of builders' hardware and supplies, business machines and equipment, grain, feed, fertiliser and agricultural supplies, and tractors were excluded from the 1961-62 Census. Retail sales of motor vehicles, parts, etc. have been included, whether for industrial, commercial, farm, or private use.

For complete details of the tabulations relating to Western Australia from the 1961-62 Census, the reader is referred to the publication *Census of Retail Establishments and Other Services: Year ended 30 June 1962: Bulletin No. 6—Western Australia* published by the Commonwealth Statistician, Canberra. This bulletin is one of a series dealing separately with each of the Australian States and Territories.

The Census of Retail Establishments provides a framework for the quarterly sample surveys designed to measure variations in the value of retail sales throughout the intercensal period—see following section.

#### **SURVEY OF RETAIL ESTABLISHMENTS**

During the period between censuses, estimates of the value of retail sales are derived from returns received from a representative sample of retailers throughout Australia. These establishments account for approximately 45 per cent of the total retail sales in Australia. From these sample returns, totals for all retail establishments in Australia are estimated by methods appropriate to a stratified sample, using data from the most recent census as a benchmark.



Annual revisions to the sample take account of the changing pattern of retail trade and ensure that new businesses entering the field are represented in the survey.

Quarterly estimates for each State and Territory and Australia as a whole in broad commodity groups are published by the Commonwealth Statistician in the bulletin *Retail Sales of Goods*. Preliminary monthly estimates of total retail sales in Australia (excluding motor vehicles, etc.), based on a sub-sample of the establishments used to provide the quarterly estimates, appear in *Retail Sales of Goods (Provisional)*.

In the following table, the estimated value of retail sales of goods in Western Australia is given by commodity groups for each of the years 1965-66 to 1969-70. The estimates shown are compiled on a basis comparable with the 1961-62 Census of Retail Establishments.

RETAIL SALES CLASSIFIED ACCORDING TO COMMODITY GROUPS (a)  
(\$ million)

Commodity group	1965-66	1966-67	1967-68	1968-69	1969-70
Groceries .....	88.0	93.7	102.6	113.7	120.4
Butchers' meat .....	36.8	40.5	43.8	48.7	52.5
Other food (b) .....	65.3	70.3	78.1	86.1	96.3
Total food and groceries .....	190.1	204.5	224.5	248.5	269.2
Beer, wine and spirits (c) .....	54.6	62.3	69.2	82.6	92.5
Clothing, drapery, soft furnishings .....	73.7	80.6	88.2	96.7	104.7
Footwear .....	12.8	13.5	15.1	16.4	17.1
Hardware, china and glassware (d) .....	12.7	13.4	14.8	16.7	17.7
Electrical goods (e) .....	28.5	31.5	35.9	40.3	42.8
Furniture, mattresses, floor coverings .....	22.8	24.4	28.0	32.4	35.8
Chemists' goods .....	24.3	26.4	29.0	34.6	37.7
Newspapers, books, stationery .....	13.9	14.8	16.2	18.5	20.5
Other goods (f) .....	47.5	52.9	57.0	64.1	68.0
Total (excluding motor vehicles, etc.) .....	480.9	524.3	577.9	650.8	706.0
New and used motor vehicles, parts, petrol, etc. (g) .....	181.7	219.5	249.7	291.9	316.1
GRAND TOTAL .....	662.6	743.8	827.6	942.7	1,022.1

(a) Figures for 1965-66 to 1968-69 have been revised since previous issue. (b) Includes fresh fruit and vegetables, confectionery, soft drinks, ice cream, cakes, pastry, cooked provisions, fish, etc. but excludes most delivered milk and some delivered bread. (c) Excludes sales made by licensed clubs. (d) Excludes basic building materials, builders' hardware and supplies such as tools of trade, paint, etc. (e) Includes radios, television and accessories, musical instruments, domestic refrigerators. (f) Includes tobacco, cigarettes, etc.; jewellery, sporting goods, etc. but excludes grain and produce, and business machines. (g) Excludes tractors, farm machinery and implements, earthmoving equipment, etc.

For purposes of comparison the following tables show, for each of the Australian States and Territories, the total value of retail sales excluding motor vehicles, etc. and of retail sales of new and used motor vehicles, parts, petrol, etc. in each of the years 1965-66 to 1969-70.

RETAIL SALES (EXCLUDING MOTOR VEHICLES, ETC.): STATES AND TERRITORIES (a)  
(\$ million)

State or Territory	1965-66	1966-67	1967-68	1968-69	1969-70
New South Wales .....	2,525.7	2,676.4	2,858.8	3,001.5	3,233.0
Victoria .....	1,917.4	2,039.2	2,170.2	2,276.4	2,441.4
Queensland .....	897.0	960.6	1,020.0	1,060.7	1,128.3
South Australia .....	602.0	627.1	663.3	704.1	755.9
Western Australia .....	480.9	524.3	577.9	650.8	706.0
Tasmania .....	198.3	215.0	227.4	238.8	252.3
Australian Capital Territory .....	56.9	65.7	74.6	(b)	(b)
Northern Territory .....	24.7	28.8	34.4	(b)	(b)
AUSTRALIA .....	6,702.9	7,137.1	7,626.6	(c) 7,932.3	(c) 8,516.9

(a) Figures for 1965-66 to 1968-69 have been revised since previous issue. (b) Not available. (c) Excludes Australian Capital Territory and Northern Territory.

RETAIL SALES OF MOTOR VEHICLES, PARTS, PETROL, ETC.: STATES AND TERRITORIES (a)  
(\$ million)

State or Territory	1965-66	1966-67	1967-68	1968-69	1969-70
New South Wales	888.7	967.3	1,080.0	1,174.1	1,304.9
Victoria	655.2	676.8	752.3	778.8	852.1
Queensland	345.9	352.9	396.8	423.5	456.5
South Australia	220.4	214.7	241.9	260.3	283.4
Western Australia	181.7	219.5	249.7	291.9	316.1
Tasmania	77.4	79.9	86.1	86.3	96.8
Australian Capital Territory	19.6	23.8	29.7	(b)	(b)
Northern Territory	9.6	11.2	16.5	(b)	(b)
AUSTRALIA	2,398.5	2,546.1	2,853.0	(c) 3,014.9	(c) 3,309.8

(a) Figures for 1965-66 to 1968-69 have been revised since previous issue.

(b) Not available.

(c) Excludes Australian Capital Territory and Northern Territory.

### DELIVERIES OF NEW AGRICULTURAL MACHINERY

The statistics in this section, which cover certain types of imported and Australian-made new agricultural machinery, have been derived from quarterly returns collected from principals marketing the equipment. Deliveries represent implements and machines sent to agents or dealers by the principals or by the State distributors, plus direct sales to final users by the principals or distributors. Additional information on receipts, deliveries and stocks is available in the quarterly bulletin *New Agricultural Machinery Statistics* issued by the Commonwealth Statistician, Canberra.

### DELIVERIES OF NEW AGRICULTURAL MACHINERY (a) (Number)

Type of implement or machine	1965-66	1966-67	1967-68	1968-69	1969-70
New tillage implements—					
Disc ploughs—					
Tractor-mounting type	83	46	39	41	(b)
Trailing type	1,182	1,137	1,096	*969	306
Agricultural rippers (sub-soilers)	n.a.	n.a.	126	*153	150
Tine cultivators and scarifiers	601	483	639	(b)	242
Tine harrows (number of leaves or sections)	6,373	8,219	12,099	*8,972	3,961
Disc harrows	n.a.	n.a.	155	185	182
Rotary cultivators	446	335	327	351	(b)
New seeding and fertilising machinery—					
Drills and cultivating drills	886	932	1,184	975	336
Fertiliser spreaders, other than direct drop	300	518	660	*512	268
New harvesting, haymaking and silage-making machinery—					
Pick-up balers	190	193	209	131	347
Forage harvesters	31	25	13	(b)	31
Headers (combine harvesters)—					
Self-propelled	274	216	376	192	103
Drawn	810	735	411	335	(b)
Agricultural mowers (4 ft cut and over) (c)—					
Reciprocating knife	399	243	192	(b)	229
Rotary mowers, slashers, and toppers	360	449	449	*345	218
Pick-up bale loaders for baled hay	n.a.	n.a.	90	134	202
Bale elevators and stackers	n.a.	n.a.	102	104	151
Grain augers	n.a.	n.a.	691	(b)	(b)
Other new agricultural machinery—					
Post-hole diggers (auger type)	290	260	294	(b)	210
Hammer mills (farm type)	82	126	(b)	135	99

n.a. denotes 'not available'.

(a) See letterpress immediately preceding table.

(b) Not available for publication.

(c) Excludes flail mowers and toppers.

\*Revised.

### SALES OF NEW TRACTORS

The following table has been derived from the quarterly collection of tractor statistics from businesses which distribute the various makes of new tractors throughout Australia. The figures for sales represent the number of new tractors delivered or in transit to end-users or to manufacturers of tractor attachments. For additional information, the reader is referred to the bulletin *New Tractors: Receipts, Sales and Stocks* issued quarterly by the Commonwealth Statistician, Canberra.

### SALES OF NEW TRACTORS (a) (Number)

Horsepower and shipping weight	Agricultural (b)			Non-agricultural (b)		
	1967-68	1968-69	1969-70	1967-68	1968-69	1969-70
<b>WHEELED TRACTORS</b>						
Maximum power take-off horsepower—						
Up to and including 15 hp	(c)	(c)	(c)	(c)	(c)	(c)
Over 15 hp and up to 25 hp	(c)	(c)	(c)	(c)	(c)	(c)
" 25 hp " " 35 hp	262	244	(c)	77	95	(c)
" 35 hp " " 45 hp	344	(c)	135	210	(c)	347
" 45 hp " " 60 hp	968	864	(c)	35	56	(c)
" 60 hp " " 80 hp	409	(c)	77	(c)	(c)	(c)
" 80 hp " " 100 hp	(c)	(c)	(c)	(c)	(c)	(c)
Total	2,072	1,752	(c)	438	524	(c)
<b>CRAWLER TRACTORS</b>						
Shipping weight—						
Over 3,000 lb and up to 6,000 lb	(c)	(c)	(c)	(c)	(c)	(c)
" 6,000 lb " " 10,000 lb	(c)	(c)	(c)	(c)	(c)	(c)
" 10,000 lb " " 15,000 lb	(c)	(c)	(c)	(c)	(c)	(c)
" 15,000 lb " " 25,000 lb	4	(c)	(c)	65	(c)	(c)
" 25,000 lb " " 40,000 lb	(c)	(c)	(c)	(c)	(c)	(c)
Total	40	(c)	(c)	201	(c)	(c)

(a) See letterpress immediately preceding table.

(b) Includes wheeled tractors which are operated from in front of the engine when the vehicle is in forward motion, and articulated tractors.

(c) Not available for publication.

## WHOLESALE SALES AND STOCKS OF WINE AND BRANDY

### WINE AND BRANDY—WHOLESALE SALES AND STOCKS (See letterpress on page 444)

Type	Wholesale sales (a)			Stocks held by wholesalers and winemakers at 30 June		
	1967-68	1968-69	1969-70	1968	1969	1970
Wine—	gallons	gallons	gallons	gallons	gallons	gallons
Sherry—						
Flor	40,804	38,868	33,245	19,547	19,766	28,939
Other dry		38,600	35,935		45,851	41,829
Medium (b)	612,884	178,665	157,041	337,305	46,629	49,550
Sweet		484,838	420,124		228,693	217,085
Dessert wines—						
Port (c)		174,848	155,285		134,109	152,897
Muscat (d)	407,974	204,799	170,965	357,135	169,526	212,387
Other (e)		63,200	58,869		31,998	21,549
Table wines (still, unfortified)—						
Dry white (f)	126,849	148,820	157,109	131,144	171,851	209,708
Dry red (g)	339,034	388,721	410,282	381,332	446,313	505,720
Sweet (h)	45,518	47,710	57,826	25,803	25,382	37,938
Rose	8,074	18,253	29,746	13,060	13,206	28,626
Sparkling wines (all types) (i)—						
White	143,686		131,906	26,459		20,427
Red	13,995	165,225	52,433	3,455	39,626	7,973
Wine cocktails, etc. (j)	26,087	24,134	27,098	5,246	5,515	5,469
Vermouth	25,396	30,028	35,853	7,591	7,439	11,389
Total, Wine	1,790,301	2,006,709	1,933,717	1,308,077	1,385,904	1,551,486
Brandy	proof gallons 88,374	proof gallons 92,903	proof gallons 97,626	proof gallons 20,144	proof gallons 21,537	proof gallons 21,918

(a) Comprises sales (both local and interstate) made by wholesalers and winemakers from stocks held in Western Australia. Excludes sales to wholesalers and winemakers for resale by them, overseas exports, and sales for ships' stores. (b) Includes medium dry and medium sweet. (c) Other than white. (d) Includes Frontignac. (e) Includes Madeira, Tokay, Marsala and White Port. (f) Includes Riesling, Hock, Moselle, Chablis and White Burgundy. (g) Includes Claret and Burgundy. (h) Includes Sauterne and Graves. (i) Includes carbonated and pearl-type wines, etc. (j) Includes aperitif and tonic wines.

Each year details are obtained from winemakers, wholesale merchants, and importers, of the quantities of the various types of wine and brandy held in stock at 30 June or sold to retailers and consumers during the previous twelve months. The survey thus covers all sales of wine and brandy by wholesalers and manufacturers in the State except sales made to other wholesalers or manufacturers for resale by them, or to overseas purchasers. Although the figures for sales in the previous table are free of duplication, they should not be regarded as showing actual consumption in Western Australia as they include sales to retailers and consumers in other States and, conversely, exclude purchases from other States by Western Australian retailers and consumers.

In 1968-69 a new classification of type of wine was adopted. For this reason comparison of figures for sales for 1967-68 or stocks at 30 June 1968 with those for the two later years shown in the table can only be made in respect of total figures for sales and stocks of Sherry, Dessert Wines and Sparkling Wines.

## Chapter IX—continued

### Part 3—Transport

Western Australia's main transport systems are based generally on Perth, the capital, and the principal port, at Fremantle. Subsidiary systems are centred on a number of outports north and south of Fremantle and on some inland towns.

The railway system extends from Fremantle, Perth and Midland for hundreds of miles into the mining, agricultural, pastoral and forest areas in the southern half of the State. There is also a well-developed road system in this area, and the coastal towns in the north-west and the north are connected by road with the south and with the pastoral and mining areas of the hinterland. International flights operate through the airport at Perth, which is also the centre of a comprehensive network of airline services to towns in Western Australia and to the capital cities of other States.

In recent years important mineral developments in the north-west have led to the provision of deep-water port facilities and the construction of railways and roads connecting them with the extensive iron-ore deposits now being exploited.

The following table shows distances by road, rail, sea and air between Perth and selected towns and localities in Western Australia.

**DISTANCES BETWEEN PERTH AND SELECTED TOWNS AND LOCALITIES  
IN WESTERN AUSTRALIA**  
(Route miles)

Town or locality	Road	Rail	Sea (a)	Air (b)	Town or locality	Road	Rail	Air (b)
<b>North of 26°S. latitude—</b>					<b>South of 26°S. latitude—</b>			
<b>Coastal—</b>					<b>Inland—continued</b>			
Broome ....	1,368	....	1,193	1,045	Bruce Rock ....	152	193	....
Carnarvon ....	611	....	494	512	Collie ....	127	124	....
Dampier ....	1,005	....	861	788	Coolgardie ....	347	364	....
Denham (Shark Bay) ....	568	....	490	428	Donnybrook ....	133	132	....
Derby ....	1,470	....	1,362	1,130	Forrest ....	....	783	....
Exmouth ....	835	....	688	715	Harvey ....	87	86	....
Onslow ....	880	....	736	755	Hyden ....	212	344	....
Port Hedland ....	1,030	....	961	822	Kalgoorlie ....	371	407	334
Roebourne ....	1,020	....	900	810	Kambalda ....	394	....	....
Wyndham ....	2,007	....	1,743	1,456	Katanning ....	176	244	....
<b>Inland—</b>					Koolyanobbing ....	263	284	....
Fitzroy Crossing ....	1,574	....	....	1,267	Leonora ....	517	549	386
Goldsworthy ....	1,058	....	....	....	Madura ....	780	....	....
Halls Creek ....	1,773	....	....	1,401	Manjimup ....	191	197	....
Kununurra ....	1,995	....	....	1,481	Meekatharra ....	475	608	400
Marble Bar ....	917	....	....	858	Merredin ....	162	177	....
Newman ....	736	....	....	637	Moora ....	117	108	....
Nullagine ....	846	....	....	742	Mount Barker ....	224	321	....
Tom Price ....	1,014	....	....	650	Mukinbudin ....	180	223	....
Wittenoom ....	904	....	....	692	Mullewa ....	291	339	....
<b>South of 26°S. latitude—</b>					Nannup ....	176	181	....
<b>Coastal—</b>					Narrogin ....	117	181	....
Albany ....	254	361	347	235	Newdegate ....	249	325	....
Augusta ....	198	....	194	....	Norseman ....	451	473	344
Bunbury ....	108	115	103	....	Northam ....	61	76	....
Busselton ....	140	149	117	....	Pinjarra ....	54	54	....
Esperance ....	457	598	560	363	Ravensthorpe ....	331	....	....
Eucla ....	893	....	....	....	Southern Cross ....	231	249	....
Fremantle ....	11	12	....	....	Wagin ....	142	212	....
Geraldton ....	312	306	206	234	Wiluna ....	587	....	469
<b>Inland—</b>					Wyalkatchem ....	119	148	....
Bridgetown ....	169	174	....	....	York ....	61	97	....

(a) Nautical miles from Fremantle.

(b) Shortest regular route.

Distances by road, rail, sea and air between Perth and other capital cities in Australia are shown in the next table.

### DISTANCES BETWEEN PERTH AND OTHER CAPITAL CITIES (Miles)

Method of travel	Canberra	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Darwin
Road .....	2,457	(a) 2,594	(a) 2,168	(a) 3,222	1,704	....	2,564
Rail .....	(b) 2,663	(b) 2,461	2,115	(b) 3,074	1,632	....	....
Sea (c) .....	....	(d) 2,140	(d) 1,681	(d) 2,638	(d) 1,343	(d) 1,806	(d) 1,841
Air .....	1,991	(a) 2,120	(a) 1,784	(a) 2,599	1,377	2,176	1,868

(a) Via Adelaide.

(b) Via Broken Hill.

(c) Distance in nautical miles.

(d) From Fremantle.

### SHIPPING

Western Australia's sea-borne trade is conducted through the Port of Fremantle and a number of outports. Of these, Geraldton, Bunbury, Busselton, Albany and Esperance are situated in the more highly-developed south-western and southern part of the State. The less closely-settled areas of the north-west and the north are served by ports and other landing points at Useless Loop (Shark Bay), Carnarvon, Cape Cuvier, Exmouth, Onslow, Barrow Island, Dampier, Point Samson, Port Hedland, Broome, Derby, Yampi and Wyndham.

The following table shows the number of entrances and the net tonnage of vessels entering each port, and the tonnage of cargo discharged at and shipped from each port, during the years 1967-68 and 1968-69. The figures exclude particulars of naval vessels; yachts and other craft used for pleasure; foreign fishing vessels that neither load nor discharge cargo; fishing vessels registered in Australia; vessels engaged in geographic, seismic or oceanographic surveys; offshore oil-drilling rigs and vessels servicing them; and vessels of 200 registered net tons and under.

### ENTRANCES OF VESSELS AND CARGO HANDLED AT PORTS

Port	Entrances of vessels				Cargo handled			
	1967-68		1968-69		1967-68		1968-69	
	Number	Net tonnage of vessels	Number	Net tonnage of vessels	Discharged	Shipped	Discharged	Shipped
Port of Fremantle .....	*1,406	'000 8,664	1,389	'000 8,920	'000 tons 5,349	'000 tons 4,720	'000 tons 6,175	'000 tons 4,712
Other ports—								
Albany .....	184	947	159	890	281	365	278	190
Barrow Island (a) .....	96	555	91	672	18	1,089	10	1,467
Broome .....	108	254	109	260	24	8	22	12
Bunbury .....	157	760	154	806	262	753	286	775
Busselton .....	11	19	7	13	....	17	....	11
Carnarvon (b) .....	21	58	32	135	17	75	24	239
Dampier .....	206	2,285	271	3,726	154	6,926	160	10,933
Derby .....	89	174	75	141	27	5	27	3
Esperance .....	49	236	59	299	159	128	182	153
Exmouth .....	16	88	19	116	14	(c)	25	1
Geraldton .....	154	756	123	686	210	1,142	214	1,024
Onslow .....	68	125	49	88	2	1	1	1
Point Samson .....	67	123	61	94	4	7	7	2
Port Hedland .....	300	1,540	309	2,107	283	3,943	230	5,549
Wyndham .....	96	225	97	253	30	19	49	18
Yampi .....	158	971	166	1,274	13	2,147	44	2,763
Total .....	1,780	*9,115	1,781	11,559	1,497	16,625	1,559	23,139
All ports .....	*3,186	17,779	3,170	20,479	6,846	21,345	7,734	27,851

(a) Buoyed sea terminal. (b) The figures shown for 1967-68 include Useless Loop; those for 1968-69 include Cape Cuvier and Useless Loop. (c) Less than 500 tons. \* Revised.

The net tonnage of a vessel, expressed in tons of 100 cubic feet, represents the volume of enclosed space that can be used for cargo and passengers. Most cargoes are recorded in terms of the ton weight of 2,240 lb but some cargo, consisting mainly of bulky commodities, is recorded on the basis of the ton measurement, a unit equivalent to forty cubic

feet of space. Statistics are compiled accordingly in terms of 'tons weight' or 'tons measurement'. In order to provide a ready comparison, as in the previous table, of the volume of cargo handled at the several ports or in different years, the amounts recorded in the two categories have been aggregated. In the following table, details of cargo handled at each port during 1968-69 are presented separately on the basis of 'tons weight' and 'tons measurement'.

**TONNAGE OF OVERSEAS, INTERSTATE AND INTRASTATE CARGO: 1968-69**  
(Tons)

Port	Overseas		Interstate		Intrastate		Total	
	Weight	Measurement	Weight	Measurement	Weight	Measurement	Weight	Measurement
<b>DISCHARGED</b>								
Port of Fremantle	3,942,655	278,707	1,194,905	161,202	588,072	9,452	5,725,632	449,361
Other ports—								
Albany	193,837	70	13,324	293	70,831	....	277,992	363
Barrow Island (a)	5,215	2,155	....	....	1,863	829	7,078	2,984
Broome	1,637	186	901	46	11,488	7,953	14,026	8,185
Bunbury	176,151	10	....	10	110,133	....	286,284	20
Busselton	....	....	....	....	....	....	....	....
Carnarvon (b)	17,810	....	....	....	6,595	....	24,405	....
Dampier	130,067	6,033	10,820	....	8,374	5,042	149,261	11,075
Derby	11,564	....	16	87	4,051	10,962	15,631	11,049
Esperance	94,865	11	42,530	....	44,130	....	181,525	11
Exmouth	559	1,906	....	....	22,620	36	23,179	1,942
Geraldton	124,415	10	165	10	88,800	382	213,380	402
Onslow	....	....	....	....	541	630	541	630
Point Samson	1,321	....	100	....	5,392	....	6,813	....
Port Hedland	48,347	2,810	13,561	2,873	141,176	21,308	203,084	26,991
Wyndham	12,811	3,006	143	250	9,996	22,575	22,950	25,831
Yampi	....	....	35,236	....	8,183	211	43,419	211
Total	818,599	16,197	116,796	3,569	534,173	69,928	1,469,568	89,694
All ports	4,761,254	294,904	1,311,701	164,771	1,122,245	79,380	7,195,200	539,055
<b>SHIPPED</b>								
Port of Fremantle	2,237,351	224,380	1,549,706	56,698	548,108	95,817	4,335,165	376,895
Other ports—								
Albany	185,528	4,270	....	244	....	....	185,528	4,514
Barrow Island (a)	....	....	1,130,028	....	337,057	50	1,467,085	50
Broome	7,802	697	32	129	680	2,794	8,514	3,620
Bunbury	651,740	33,328	52,695	....	35,453	1,360	739,888	34,688
Busselton	2,335	310	4,671	3,382	....	....	7,006	3,692
Carnarvon (b)	238,557	....	....	....	....	....	238,557	....
Dampier	10,932,543	....	....	....	2	....	10,932,545	....
Derby	....	....	28	125	336	2,600	364	2,725
Esperance	150,581	....	2,161	....	....	....	152,742	....
Exmouth	109	126	....	....	348	532	457	658
Geraldton	1,023,291	....	560	....	404	83	1,024,255	83
Onslow	....	....	....	....	435	678	435	678
Point Samson	20	....	14	....	1,492	....	1,526	....
Port Hedland	5,508,297	86	34,877	86	4,071	1,187	5,547,245	1,359
Wyndham	10,984	....	2,801	799	972	2,102	14,757	2,901
Yampi	199,456	....	2,433,342	....	130,355	208	2,763,153	208
Total	18,911,243	38,817	3,661,209	4,765	511,605	11,594	23,084,057	55,176
All ports	21,148,594	263,197	5,210,915	61,463	1,059,713	107,411	27,419,222	432,071

(a) Buoyed sea terminal.

(b) Includes Cape Cuvier and Useless Loop.

Apart from general cargo, overseas and interstate consignments discharged were principally petroleum products, rock phosphate, iron and steel products, coke and sulphur. Outward cargoes, with the exception of refined petroleum products and steel products shipped from the Port of Fremantle (Outer Harbour) consisted largely of primary products, including minerals. Cargo shipped from Esperance comprised mainly cereal grains and nickel ore, and from Albany cereal grains, wool and apples. At Bunbury the principal cargo was mineral sands, followed next in importance by wheat. Exports from Busselton

consisted entirely of timber. Iron ore and cereal grains were the main items shipped from Geraldton. In the northern part of the State, Dampier, Port Hedland and Yampi are the major ports for the shipment of iron ore. The buoyed sea terminal at Barrow Island provides facilities for the loading of crude petroleum. From other ports in the area, cargo shipped consisted mainly of cotton, cotton seed, meat, and minerals, including salt and gypsum.

The Western Australian Coastal Shipping Commission was established in 1965 to carry on the services formerly maintained by the State Shipping Service. The Commission's ships operate along the north-west and northern coasts, calling regularly at ports between Fremantle and Darwin (Northern Territory). Besides general cargo the freight discharged at north-west and northern ports consists mainly of refined petroleum products, building and construction materials, refrigerated cargo, vehicles and livestock. Cargoes carried south to Fremantle are mainly primary products, such as meat, livestock, wool and minerals.

#### SHIPPING—ENTRANCES AND CLEARANCES: 1968-69

Port			From or to overseas countries			From or to other Australian States		From or to other Western Australian ports	Total	
			Direct	Via other Australian States	Via other Western Australian ports	Direct	Via other Western Australian ports		Number	Net tonnage of vessels ('000)
ENTRANCES										
Port of Fremantle	....	....	517	73	80	413	56	250	1,389	8,920
Other ports—										
Albany	....	....	20	1	16	67	3	52	159	890
Barrow Island (a)	....	....	7	....	3	37	....	44	91	672
Broome	....	....	8	....	3	6	8	84	109	260
Bunbury	....	....	23	2	23	30	....	76	154	806
Busselton	....	....	....	....	....	....	....	7	7	13
Carnarvon (b)	....	....	13	....	8	....	....	11	32	135
Dampier	....	....	214	5	9	8	2	33	271	3,726
Derby	....	....	6	....	1	4	8	56	75	141
Esperance	....	....	24	....	....	13	1	21	59	299
Exmouth	....	....	3	1	5	2	....	8	19	116
Geraldton	....	....	72	....	6	6	5	34	123	686
Onslow	....	....	....	....	....	2	....	47	49	88
Point Samson	....	....	2	....	....	2	....	57	61	94
Port Hedland	....	....	138	8	15	8	19	121	309	2,107
Wyndham	....	....	9	6	1	19	7	55	97	253
Yampi	....	....	39	....	....	44	1	82	166	1,274
Total	....	....	578	23	90	248	54	788	1,781	11,559
All ports	....	....	1,095	96	170	661	110	1,038	3,170	20,479
CLEARANCES										
Port of Fremantle	....	....	612	42	38	414	62	221	1,389	8,901
Other ports—										
Albany	....	....	52	10	54	9	3	32	160	892
Barrow Island (a)	....	....	....	....	....	50	1	38	89	661
Broome	....	....	3	....	16	3	11	76	109	260
Bunbury	....	....	20	7	90	10	....	25	152	791
Busselton	....	....	....	2	....	5	....	....	7	13
Carnarvon (b)	....	....	24	....	1	1	....	5	31	129
Dampier	....	....	212	....	....	9	....	50	271	3,745
Derby	....	....	1	....	....	1	26	47	75	141
Esperance	....	....	13	4	11	4	1	26	59	299
Exmouth	....	....	....	....	10	....	....	9	19	116
Geraldton	....	....	35	....	37	1	13	37	123	683
Onslow	....	....	....	....	....	....	....	49	49	88
Point Samson	....	....	....	....	....	....	6	55	61	94
Port Hedland	....	....	143	....	3	12	25	124	307	2,094
Wyndham	....	....	5	1	7	44	1	38	96	250
Yampi	....	....	5	....	....	94	19	47	165	1,285
Total	....	....	513	24	229	243	106	658	1,773	11,540
All ports	....	....	1,125	66	267	657	168	879	3,162	20,441

(a) Buoyed sea terminal.

(b) Includes Cape Cuvier and Useless Loop.





#### PORT HEDLAND

This aerial photograph of Port Hedland from 15,000 feet illustrates the harbour development that has taken place. As recently as 1965 the port was restricted to ships of less than 5,000 tons. A massive dredging programme, however, has given the port the facility to berth three 100,000 ton vessels at the two ore piers as well as smaller ships at three general cargo berths.

At the top left is Finucane Island, while in the foreground mangrove swamps may be seen.

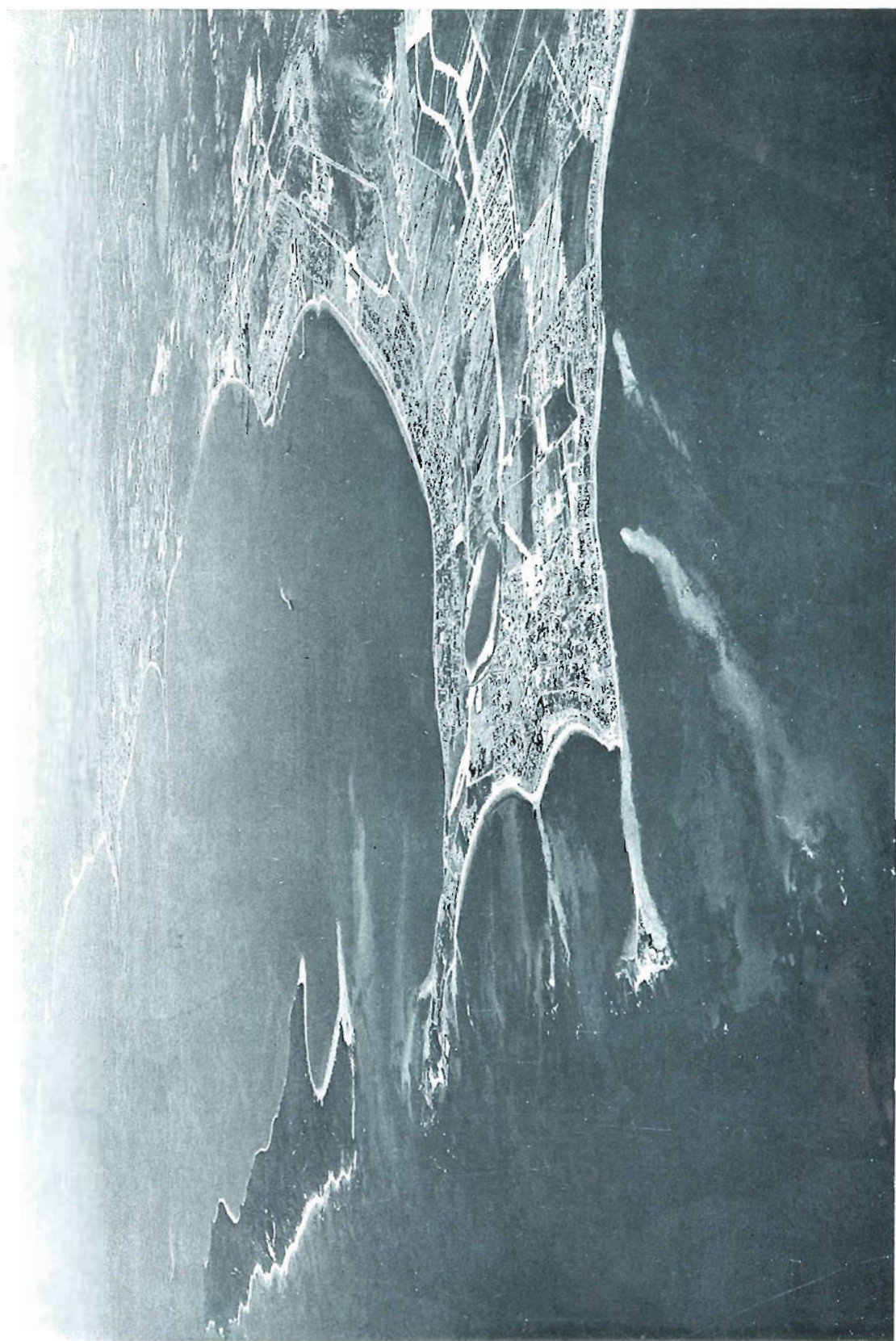




### 'AUSTRALIAN ENDEAVOUR' AT FREMANTLE

The Australian National Line's container ship 'Australian Endeavour' berthed at the Port of Fremantle container terminal. The delivery in 1969 of two vessels, one in Germany and one in Japan, marked the entry of The Australian National Line into overseas liner services. The 'Australian Endeavour' was built in Germany and completed her first loading at Rotterdam on 20 August 1969, arriving at Fremantle on 10 September 1969. Since then the vessel has operated between continental ports and Fremantle, Melbourne and Sydney. From 1 September 1970, the 'Australian Endeavour' has operated as part of the Australia-Europe Container Service.





An aerial photograph of Cockburn Sound, showing the water body and surrounding land. The image is mostly blank, suggesting a very high or wide-angle shot that captures the vast expanse of the sound. The land visible at the bottom and left edges appears to be a mix of green vegetation and some developed areas.

### COCKBURN SOUND

Aerial view of Cockburn Sound, the southern portion of the Outer Harbour of the Port of Fremantle. At the left is Garden Island and opposite on the mainland may be seen the expanding industrial complex at Kwinana.

In the previous table vessels entered at and cleared from each Western Australian port during 1968-69 are classified according to the direction of the voyage on which each vessel was engaged. 'Direction' is determined by reference to the port of commencement of the inward voyage or the port of termination of the outward voyage.

### Administration of Ports

The State Government, through the Harbour and Light Department, controls the ports at Broome, Busselton, Carnarvon, Derby, Onslow, Point Samson, Port Hedland and Wyndham. The ports at Albany, Bunbury, Esperance, Fremantle and Geraldton are controlled by separately-constituted authorities established by Act of Parliament. Private operators control the ports (or landing points) at Barrow Island, Cape Cuvier, Dampier, Exmouth, Useless Loop and Yampi.

### THE PORT OF ALBANY

The Port of Albany (latitude 35°S., longitude 118°E.) is the most southerly port in Western Australia. The effect of tidal movements is negligible and, as there is little trouble from fogs or storms, it is an all-weather port. The Port of Albany comprises the waters of Princess Royal Harbour and King George Sound west of a line starting from the eastern extremity of Bald Head and extending northerly to Herald Point. It embraces an area of forty-six square miles having an abundance of natural deep water and affording excellent protection to shipping and shore works. Access to Princess Royal Harbour from King George Sound is by means of a channel of thirty-three feet minimum depth and 500 feet wide.

Statistics of activity at the port during the years 1968-69 and 1969-70 are given in the tables on pages 446-8.

**Administration.** The Port of Albany is under the control of the Albany Port Authority established in terms of the *Albany Port Authority Act, 1926-1967*. The Authority consists of five members, including a chairman, appointed by the Governor. The principal executive officer is the Managing Secretary.

Under the provisions of the Act, exclusive control of the Port of Albany is vested in the Authority, which is responsible for the development, maintenance and preservation of the assets associated with the operation of the port. These assets include wharves and jetties, transit sheds, navigation channels, roads, railway permanent ways, cargo-handling plant, and ancillary services for port operation. A VHF radio-telephone station is operated on international channels 6, 12 and 16. The Authority undertakes the mooring and unmooring of ships and also acts as wharfinger, being responsible for the shore handling of cargo. For this purpose, waterside labour is engaged on behalf of the Authority, which provides the necessary equipment and mechanical plant.

**Finance.** The revenue of the Albany Port Authority is derived mainly from wharfage levied on cargo shipped into or out of the port, rates payable on cargo handled by the Authority, and tonnage rates on ships using the port. Other sources of revenue include rents, charges for services such as mooring and unmooring, the provision of electric power, use of weighbridge, and hire charges on equipment. Expenditure includes salaries, wages and other costs of handling cargo, the purchase of materials and other expenses incurred in the upkeep and maintenance of the assets of the Authority, and the costs of port services. Funds for capital works are provided by allocations from the General Loan Fund (see page 280), by borrowing against debentures or inscribed stock, and by the retention of revenue surpluses.

**Wharves and Jetties.** All the existing structural development has taken place within Princess Royal Harbour. Adjacent to the entrance channel and situated on the northern side of the harbour is a timber jetty which provides two working berths, one of which is

550 feet in length with a depth of thirty-one feet, and the other 800 feet in length with a depth of twenty-five feet. In addition, there are two lay-by berths, 350 feet and 600 feet in length.

Further west, an area of approximately 80 acres has been reclaimed along the northern shore of the harbour and two marginal berths with concrete decks have been constructed. On completion of an extension of ninety-four feet which is currently under construction, these two berths will have a total length of 1,207 feet with a low-water depth of thirty-three feet. Extending easterly from these berths, an additional berth is under construction and is scheduled for completion early in 1971. This berth is 640 feet long and has an alongside depth of thirty-six feet. To provide for the larger ships and to allow for changes in methods of cargo handling, the berth has been constructed to cater for heavy loading and is suitable for up to 60-ton axle loads.

Moorings are provided in Frenchman Bay for vessels loading whale oil in bulk by means of a submarine pipe line. Ships moor above a sloping sea-bed, grading from a low-water depth of thirty-five feet at a fixed stern-mooring buoy to a depth of sixty feet at the forward anchor position.

**Harbour Maintenance and Development.** As no rivers discharge into the harbour and no siltation occurs in the dredged area, maintenance dredging is unnecessary.

Plans for development include deepening of the entrance channel and berth approaches, and the construction of further wharf berths continuing eastward from the existing development and along the same alignment. The jetty berths will be removed when these wharf extensions are completed.

**Handling of Cargo.** The principal items of cargo discharged are rock phosphate, sulphur, jute goods, petroleum products and chemical fertiliser. Outward cargoes comprise mainly wheat, oats, barley, apples, greasy wool, frozen meat and whale oil. All wharf and jetty berths are served by railway connected to the Western Australian Government Railways' system, while good road access is provided to wharf berths. Oil bunker facilities, as well as fresh water, are available at all berths.

At No. 1 wharf berth, there is a transit shed which has a floor area of 47,000 square feet. Bulk grain loading facilities with a handling capacity of 400 tons per hour are provided at No. 2 berth. From the grain storage terminal at the rear of the wharf area, an overhead belt conveyor system brings grain to a loading gallery on the wharf. This gallery is 416 feet long and has six booms fifty-eight feet long, at sixty-five feet centres for delivery into ships' holds. Storage capacity of the terminal is 5.8 million bushels. Following completion of the third wharf berth, it is planned to establish more modern grain-handling facilities at this berth with an increased capacity of up to 1,600 tons per hour.

In the following table, details are given of the principal items of cargo shipped overseas, interstate and intrastate from Albany during the five years 1965-66 to 1969-70.

PORT OF ALBANY—PRINCIPAL ITEMS OF CARGO SHIPPED (a)  
(Tons)

Cargo	1965-66	1966-67	1967-68	1968-69	1969-70
Apples .....	3,711	8,595	5,501	6,663	5,384
Barley .....	21,867	13,171	15,402	17,642	40,640
Meat .....	2,170	2,358	2,545	3,962	5,210
Oats .....	84,386	48,858	60,184	75,291	18,840
Whale oil .....	4,167	3,016	5,556	3,660	3,887
Wheat .....	245,059	255,242	265,960	70,535	158,014
Wool (b) .....	6,935	11,507	15,382	20,106	16,377
Other .....	3,022	3,799	3,743	4,021	2,879
<b>Total</b> .....	<b>371,317</b>	<b>346,546</b>	<b>374,273</b>	<b>201,880</b>	<b>251,231</b>

(a) Overseas, interstate and intrastate. (b) Calculated at 5 bales=1 ton.

ALBANY PORT AUTHORITY—REVENUE AND EXPENDITURE  
(\$)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>Revenue—</b>					
Wharfrage, handling and haulage rates	275,816	305,800	368,549	363,972	375,165
Tonnage rates, mooring services, etc.	98,888	107,749	117,187	124,813	104,498
Miscellaneous services	27,931	18,657	34,762	28,788	33,645
<b>Total revenue</b>	<b>402,635</b>	<b>432,206</b>	<b>520,498</b>	<b>517,573</b>	<b>513,308</b>
<b>Expenditure—</b>					
<b>Working expenses—</b>					
Cargo handling costs, wages, etc.	72,835	89,575	104,877	127,364	109,162
Maintenance on jetties, wharves, buildings, plant and equipment	23,902	39,237	44,110	(a) 165,880	41,062
Electricity	1,050	1,065	1,173	1,416	1,718
Insurance	1,983	1,472	2,833	6,084	6,416
Tug subsidy	27,363	20,832	10,200	15,362	20,142
Administration costs	12,981	15,393	14,204	18,038	20,405
Other expenses	5,441	16,981	10,819	11,048	7,818
<b>Total</b>	<b>145,555</b>	<b>184,555</b>	<b>188,216</b>	<b>(a) 345,192</b>	<b>206,723</b>
<b>Other charges—</b>					
Depreciation	29,475	30,800	32,187	33,692	36,188
Interest on loan capital	174,856	177,958	176,085	175,507	190,695
Interest on inscribed stock	5,050	9,688	18,500	31,719	59,378
<b>Total</b>	<b>209,381</b>	<b>218,446</b>	<b>226,772</b>	<b>240,918</b>	<b>286,261</b>
<b>Total expenditure</b>	<b>354,936</b>	<b>403,001</b>	<b>414,988</b>	<b>586,110</b>	<b>492,984</b>
<b>Net surplus</b>	<b>47,699</b>	<b>29,205</b>	<b>105,510</b>	<b>68,537</b>	<b>20,324</b>
<b>Net deficiency</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>

(a) Increase due mainly to non-recurring expenditure on dredging.

## RAILWAYS

Railways open for general and passenger traffic in the southern part of the State are operated by the Western Australian Government Railways Commission. The system is linked with railways of other States by the Commonwealth Government Trans-Australian Railway between Kalgoorlie in Western Australia and Port Pirie in South Australia. There are, in addition, private railways for the haulage of iron ore in the northern part of the State and timber in the south-west.

At 30 June 1970 there were 4,282 miles of railway open for general and passenger traffic in Western Australia. Of this total, 3,828 miles were owned by the State Government and operated by the Western Australian Government Railways Commission, and 454 miles were owned and operated by the Commonwealth Government. The Western Australian Government Railways Commission also operated thirteen miles of privately-owned line connecting iron-ore deposits at Koolanooka with its railway to Geraldton. Other private railways used for the transport of iron ore were those between Newman and Port Hedland (265 miles), Goldsworthy and Port Hedland (71 miles), and Tom Price and Dampier (182 miles). In addition, there were eighteen miles of private railway operated by timber millers.

Government and private railways in Western Australia are shown on the map of the State appearing at the back of the Year Book.

## The Western Australian Government Railways Commission

The *Government Railways Act, 1904-1970* constitutes a Commission, in the person of the Commissioner of Railways, who is responsible, subject to the Minister, for the administration of the Act.

Financial procedure for the Western Australian Government Railways Commission is basically the same as for other Departments. Receipts are paid into the Consolidated Revenue Fund, and finance for its operations and the servicing of debt is provided from the Fund by statutory appropriations. Loan moneys, for the construction and improvement of permanent way, for the purchase of traction units and rolling stock and for other capital outlay, are advanced by the Parliament from the General Loan Fund.

In addition to its railway services, the Commission operates an extensive system of road services for the carriage of passengers, mail and freight.

**Summary of Operations.** The following table gives particulars of the financial transactions, railway operations and road service operations of the Western Australian Government Railways for each of the years 1965-66 to 1969-70.

#### WESTERN AUSTRALIAN GOVERNMENT RAILWAYS (a)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>FINANCE (b)</b>					
Capital investment at 30 June (c) ....	\$'000 133,825	\$'000 139,393	\$'000 145,580	\$'000 153,697	\$'000 161,786
Operating revenues—					
Passenger fares ....	3,001	3,217	3,367	3,471	4,104
Parcels and mails ....	1,379	1,483	1,530	1,699	1,752
Paying goods and livestock ....	37,708	42,772	46,098	43,375	48,580
Miscellaneous ....	1,582	1,649	1,778	2,013	2,803
Total operating revenues ....	43,669	49,120	52,773	50,558	57,240
Operating expenses ....	35,985	40,170	42,623	44,503	48,550
Excess of operating revenues over expenses ....	7,684	8,950	10,149	6,055	8,689
Depreciation ....	4,669	5,340	6,140	6,574	7,632
Interest charges ....	7,006	8,069	8,810	9,533	10,631
Total deficit ....	3,991	4,459	4,800	10,052	9,573
<b>RAILWAY OPERATIONS</b>					
Route mileage at 30 June—					
3 ft 6 in gauge ....	3,747	(d) 3,502	(d) 3,502	(d) 3,381	(d) 3,377
4 ft 8½ in gauge ....	247	247	249	377	377
Dual gauge ....	66	64	64	68	74
Employees at 30 June ....	11,520	11,321	11,226	10,940	10,613
Number of—	'000	'000	'000	'000	'000
Train miles run (e) ....	8,823	9,124	9,226	8,680	8,633
Passengers carried—					
Suburban ....	9,748	9,468	9,628	9,832	10,227
Country ....	419	343	342	338	352
Total ....	10,168	9,811	9,970	10,170	10,580
Tons of freight—					
Paying goods and livestock ....	6,384	7,873	8,910	8,934	10,665
Departmental (f) ....	452	461	491	517	611
Total ....	6,836	8,334	9,402	9,452	11,277
Ton mileage—					
Paying goods and livestock ....	1,020,770	1,244,067	1,571,749	1,525,835	1,749,116
Departmental ....	46,122	43,095	40,534	37,327	45,178
Total ....	1,066,891	1,287,162	1,612,282	1,563,162	1,794,293
<b>ROAD SERVICE OPERATIONS</b>					
Route mileage at 30 June—					
Omnibus ....	3,730	3,572	3,958	4,045	4,119
Freight vehicle ....	1,352	1,426	1,807	(g) 2,004	2,004
Employees at 30 June ....	244	246	256	254	262
Number of—	'000	'000	'000	'000	'000
Miles run—					
Omnibus ....	2,061	1,945	1,875	1,958	1,930
Freight vehicle ....	941	909	895	1,011	978
Total ....	3,002	2,854	2,770	2,969	2,908
Passengers carried ....	255	237	228	234	222

(a) The railway and road service operations of The Midland Railway Company of Western Australia Limited were transferred to Western Australian Government Railways control with effect from 1 August 1964. (b) Includes financial transactions in relation to road services. (c) Including Stores Funds. (d) Excludes route mileage of 3 ft 6 in gauge line which parallels the 4 ft 8½ in gauge line. (e) Revenue and non-revenue train miles. (f) Departmental freight comprises mainly coal, oil, water, ballast, timber and rails. (g) Not available.



**Goods and Livestock Carried.** The following table shows the tonnage of paying goods and livestock carried during each year in the period from 1965-66 to 1969-70. The classification used in the table is that adopted by the Railways Commission in dissecting its freight transport statistics. The actual number of livestock carried in each of the five years is given in the second part of the table.

**WESTERN AUSTRALIAN GOVERNMENT RAILWAYS  
TONNAGE OF PAYING GOODS (a) CARRIED**

Freight classification	1965-66	1966-67	1967-68	1968-69	1969-70
Wheat .....	1,966,892	2,338,140	2,276,520	1,512,215	2,280,521
Other grain .....	276,028	253,812	212,706	265,970	140,78
Grain products .....	54,281	43,757	46,057	45,254	43,525
Chaff .....	5,657	6,208	6,842	6,863	.....
Fertilisers .....	587,486	664,357	703,806	666,714	559,862
Fruit and vegetables .....	102,994	98,790	95,672	103,629	102,113
Wool .....	100,182	109,258	116,824	141,964	126,340
Timber .....	367,536	363,545	392,676	332,900	333,442
Firewood .....	729	284	276	147	.....
Coal, coke, shale and charcoal (b) .....	678,385	590,994	359,394	229,242	135,129
Ores and minerals .....	1,101,842	2,264,298	3,477,873	4,352,432	5,435,810
Oil in tank wagons .....	214,752	237,571	248,163	256,116	266,091
Other classifications .....	819,909	804,838	885,828	933,330	1,157,361
Livestock (‡) .....	106,836	97,126	87,827	87,701	84,410
<b>Total .....</b>	<b>6,383,509</b>	<b>7,872,978</b>	<b>8,910,464</b>	<b>8,934,477</b>	<b>10,665,392</b>
<b>(‡) Number of livestock carried—</b>					
Sheep .....	1,619,214	1,523,968	1,460,691	1,508,721	1,552,640
Cattle .....	85,007	73,081	58,391	57,082	46,085
Pigs .....	102,732	107,297	119,895	83,588	90,696
Horses .....	898	755	576	582	541

(a) Including livestock.

(b) Predominantly local coal.

**Railways Rolling Stock.** The following table shows the numbers of the various categories of rolling stock of the Western Australian Government Railways in service at 30 June of the years 1966 to 1970.

**WESTERN AUSTRALIAN GOVERNMENT RAILWAYS  
ROLLING STOCK IN SERVICE**

Category	At 30 June—									
	1966	1967	1968	1969	1970	1966	1967	1968	1969	1970
	3 ft 6 in gauge					4 ft 8½ in gauge				
<b>Locomotives—</b>										
Steam .....	238	237	215	204	154	.....	.....	.....	.....	.....
<b>Diesel—</b>										
Electric .....	90	90	105	105	121	8	19	28	42	42
Mechanical .....	4	4	4	4	4	.....	.....	.....	.....	.....
Hydraulic .....	11	11	11	11	11	.....	.....	.....	.....	.....
<b>Total .....</b>	<b>343</b>	<b>342</b>	<b>335</b>	<b>324</b>	<b>290</b>	<b>8</b>	<b>19</b>	<b>28</b>	<b>42</b>	<b>42</b>
<b>Coaching stock—</b>										
Passenger cars .....	117	94	75	63	57	.....	.....	.....	.....	.....
Sleeping cars .....	59	59	59	57	52	.....	.....	.....	.....	.....
Lounge, buffet, and dining cars .....	11	11	11	11	11	.....	.....	.....	.....	.....
Rail motor cars .....	37	37	47	47	46	.....	.....	.....	.....	.....
Rail motor trailers .....	27	26	34	36	36	.....	.....	.....	.....	.....
Service vehicles (a) .....	12	12	12	11	12	.....	.....	.....	.....	.....
<b>Total .....</b>	<b>263</b>	<b>239</b>	<b>238</b>	<b>225</b>	<b>214</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>
Goods stock (b) .....	11,994	11,842	11,713	11,447	11,259	124	447	494	654	840
Service stock (c) .....	922	933	873	868	875	106	108	108	108	109

(a) Consists of inspection, track recorder, ministerial, vice-regal and special cars, livestock wagons, mineral wagons, etc.

(b) Includes brake vans, goods wagons, sh disposal wagons, water tanks, etc.

(c) Includes ballast wagons, workmen's vans, sh disposal wagons, water tanks, etc. Excludes service vehicles shown under *Coaching stock*; see note (a).

## Iron-ore Railways

In recent years the exploitation of extensive inland deposits of iron ore in Western Australia has necessitated the construction of a number of railways for the transport of ore from the mines to the coast. Conditions applying to the construction and operation of these railways are incorporated in agreements made between the State Government and mining companies and ratified by Act of Parliament.

The following summary relates to railways in use for the transport of iron ore at 31 December 1970. The quantity of ore carried on these railways was 2.65 million tons in 1966, 9.69 million tons in 1967, 15.5 million tons in 1968, 26.0 million tons in 1969 and 36.6 million tons in 1970. At 30 June 1970 there were forty-two locomotives and 1,685 ore wagons in service.

RAILWAYS USED FOR TRANSPORT OF IRON ORE

Railway	Enabling Act	Length (route miles)	Gauge	Date operative (a)
Goldsworthy-Port Hedland (b) ....	No. 97 of 1964 (c)	71	4 ft 8½ in	1966—23 May
Tom Price-Dampier (b) ....	No. 24 of 1963 (d)	182	4 ft 8½ in	1966—1 July
Newman-Port Hedland (b) ....	No. 75 of 1964 (e)	265	4 ft 8½ in	1969—18 January
Westmine-Tilley (f) ....	No. 104 of 1964 (g)	13	3 ft 6 in	1966—31 January
Koolyanobbing-Kwinana (h) ....	No. 27 of 1961 (i)	306	4 ft 8½ in	1967—10 April

(a) Date on which first load of iron ore was dispatched from mine. (b) Privately owned and operated. (c) *Iron Ore (Mount Goldsworthy) Agreement Act, 1964.* (d) *Iron Ore (Hamersley Range) Agreement Act, 1963.* (e) *Iron Ore (Mount Newman) Agreement Act, 1964.* (f) Privately owned, but operated by the Western Australian Government Railways Commission. Connected at Tilley to the Western Australian Government Railways line to the port of Geraldton. (g) *Iron Ore (Tallering Peak) Agreement Act, 1964.* (h) Part of the Western Australian Government Railways system; open for general and passenger traffic. (i) *Railways (Standard Gauge) Construction Act, 1961.* See also letterpress on page 456.

## Commonwealth Government Railways

The Commonwealth Government Railways comprise four separate systems. These are the Trans-Australian Railway, operating partly in Western Australia and partly in South Australia; the Central Australia Railway, partly in South Australia and partly in the Northern Territory; the North Australia Railway, wholly in the Northern Territory; and the Australian Capital Territory Railway.

Construction of the Trans-Australian Railway was begun at Port Augusta, the original South Australian terminus of the line, in 1912 and work was completed in 1917. Of the total length of 1,108 miles between Kalgoorlie and Port Pirie (South Australia), 454 miles are in Western Australia. Although statistical details of activities on each of the four systems are available, it is not possible to give separate particulars of the operations in Western Australia of the Trans-Australian Railway. Some statistics relating to the Commonwealth Government Railways are shown in the next table.

## Operations of Government Railways in Australia

The following table gives a summary of operations during the year ended 30 June 1969 on each of the railway systems owned by the State and Commonwealth Governments.

GOVERNMENT RAILWAYS IN AUSTRALIA—SUMMARY OF OPERATIONS, 1968-69

Railway system of—	Route mileage at 30 June	Revenue train miles run	Passenger-journeys	Goods and livestock carried	Gross earnings	Average number of employees (a)
New South Wales	6,061	38,201	248,469	31,871	228,560	44,778
Victoria	4,176	19,689	144,866	11,316	100,502	(b) 27,203
Queensland	5,824	17,109	28,165	12,975	102,452	23,421
South Australia	2,460	6,176	14,423	5,003	30,300	8,027
Western Australia	3,826	7,901	10,170	8,934	49,364	10,998
Tasmania	500	1,197	1,045	1,242	6,947	2,156
Commonwealth—						
Trans-Australian	1,108	2,341	196	881	16,232	2,112
Central Australia	818	961	23	2,394	7,045	1,257
North Australia	317	241	(c) 79	879	1,851	234
Australian Capital Territory	5	16		247	243	59
Australia	25,095	93,832	447,437	75,742	543,496	120,245

(a) Excluding construction staff except for Victoria where construction staff are included. (b) See footnote (a). (c) Less than 500

It will be noted that particulars of route miles shown for the New South Wales and Victorian systems differ from the details given for those States in the table in the next section *Railway Gauges*, which is compiled according to the State or Territory in which the several lengths of line are situated. The Victorian system includes lines extending into New South Wales, the aggregate length of such lines in New South Wales being 204 miles.

### Railway Gauges

The following table shows the route mileage of government railways of each gauge in each of the Australian States and Territories at 30 June 1969. Except where otherwise indicated, the mileages shown relate to lines owned by the several State railway authorities.

GOVERNMENT RAILWAYS IN EACH STATE AND TERRITORY OF AUSTRALIA  
ROUTE MILEAGE OPEN AT 30 JUNE 1969

State or Territory	Route miles of gauge—					Total route miles
	5 ft 3 in	4 ft 8½ in	3 ft 6 in	2 ft 6 in	2 ft 0 in	
State systems in—						
New South Wales .....	(a) 204	6,061	.....	.....	.....	6,265
Victoria .....	(b) 3,761	202	.....	9	.....	3,972
Queensland .....	.....	(c) 69	5,725	.....	30	5,824
South Australia .....	1,631	.....	829	.....	.....	2,460
Western Australia .....	.....	445	(d) 3,381	.....	.....	3,826
Tasmania .....	.....	.....	500	.....	.....	500
Commonwealth systems in—						
South Australia .....	.....	871	428	.....	.....	1,299
Western Australia .....	.....	454	.....	.....	.....	454
Northern Territory .....	.....	.....	490	.....	.....	490
Australian Capital Territory .....	.....	5	.....	.....	.....	5
Total route miles .....	5,596	8,107	11,353	9	30	25,095

(a) Part of the Victorian railway system. (b) Excludes 202 miles of 5 ft 3 in gauge line which almost parallels the 4 ft 8½ in gauge line between Melbourne and the Murray River. (c) Operated by the New South Wales Government Railways. (d) Excludes 248 miles of 3 ft 6 in gauge line which parallels the 4 ft 8½ in gauge line. Excludes 68 miles of 4 ft 8½ in / 3 ft 6 in dual gauge line which is included in the 4 ft 8½ in gauge line.

Standardisation of gauges on main trunk routes throughout Australia and on some other lines has been the subject of inquiries by the Commonwealth Government and of agreements between the Commonwealth and some States. The principle of standardisation was accepted at a Premiers' Conference in August 1945 following an investigation instituted by the Commonwealth Government in March 1944 and the submission of a favourable report in March 1945. The use of the 4 ft 8½ in gauge was recommended for adoption in a unification plan, one of the projects in which was to be the construction of a line from the Port of Fremantle through Perth to Kalgoorlie. Approval was given to the making of a survey for a route, and field work began in October 1945. The work was continued until December 1947, when it was abandoned pending agreement between the Governments of the Commonwealth and the State on the provision of finance for the unification scheme. In the years immediately following the second World War it became apparent that considerable expenditure would be necessary on the rehabilitation of the Western Australian Government Railways. The urgency and the magnitude of this undertaking were such that all the Department's available resources of money, labour and materials were absorbed in the programme and, in these circumstances, works associated with the unification plan could not be contemplated but, where possible, works connected with the restoration of the 3 ft 6 in system were so designed as to make provision for later conversion to the standard gauge.

In March 1956, a committee consisting of members of the Federal Parliament was appointed to re-examine the matter of standardisation. Among its recommendations, submitted in October 1956, was the provision of the standard gauge line between Fremantle and Kalgoorlie, but no immediate action was taken to carry out this work.

During the 1960 session, the Western Australian Parliament passed the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act ratifying an agreement between the Government and the Company relating to the establishment of an integrated iron and steel industry at Kwinana on the coast south of Fremantle. The Act made the operation of the agreement contingent upon the passage of legislation by the State and Commonwealth Parliaments to provide for the financing, construction and completion before 31 December 1968 of a standard gauge railway between the works site at Kwinana and the terminus of the Trans-Australian Railway at Kalgoorlie. Accordingly the Commonwealth Parliament passed the *Railway Agreement (Western Australia) Act 1961* extending to the State financial assistance for the project. The State Parliament approved this agreement by the *Railway Standardisation Agreement Act, 1961* and gave authority for the construction of the railway by means of the *Railways (Standard Gauge) Construction Act, 1961*. Work on route surveys was begun in 1961 and the construction of earthworks commenced on 5 November 1962. Basic planning and all major surveys required for the project were completed during 1965. The 3 ft 6 in portion of the dual gauge route between Midland and Northam along the Avon River valley was commissioned for general and passenger traffic on 13 February 1966. In October of the same year, haulage of grain on the standard gauge railway commenced between Merredin and the Port of Fremantle and the first train load of iron ore from Koolyanobbing to Kwinana was hauled in April 1967. The standard gauge line from Kwinana to Kalgoorlie was linked with the Trans-Australian Railway to Port Pirie (South Australia) on 3 August 1968, enabling 'through' freight services to commence in November 1968.

In 1962, the opening of a new 4 ft 8½ in gauge railway between Melbourne (Victoria) and Albury, on the border between Victoria and New South Wales, completed the standard gauge link between Melbourne and South Brisbane (Queensland). Late in 1969 work was completed on the last stage of a standard gauge connection between Sydney (New South Wales) and Perth and Fremantle, through Broken Hill (New South Wales), Port Pirie (South Australia) and Kalgoorlie. The length of this route is 2,461 miles (Sydney to Perth). Regular services for freight began in January 1970, and for passengers in March 1970. The passenger service has been named 'The Indian-Pacific' after the oceans it links.

## ROADS AND ROAD TRAFFIC

Work connected with road construction and maintenance and associated projects in Western Australia is undertaken by the State Government, through the Main Roads Department, and by local government authorities, comprising City Councils, Town Councils and Shire Councils.

Under the provisions of the Main Roads Act, the Main Roads Department was established in 1930 to replace the Main Roads Board originally constituted as a central road authority in 1926. The Department operates under the *Main Roads Act, 1930-1969* and is administered by a Commissioner of Main Roads responsible to the Minister for Works. The Act makes provision for public roads in the categories of 'main' roads, 'controlled-access' roads and 'developmental' roads. An additional category, that of 'important secondary' roads, is used by the Department in determining its works programme.

Main roads are those which provide communication between a large producing area, either actual or potential, and its market or nearest port or railway station; between two or more such areas; between large centres of population; or between the capital city and a large producing area or a large centre of population. Controlled-access roads are those which do not permit direct access from abutting property and may be entered or departed from only at certain selected road connections located at points which are considered to serve best the traffic for which the controlled-access road was designed. Developmental roads are those which serve to develop an area or to increase its development. Important secondary roads are those which, though originally classified as developmental, have come to be used consistently by through traffic and therefore warrant a

special allocation of funds by the Main Roads Department. The Act provides that, on the recommendation of the Commissioner, any road may be proclaimed a main road and any main road may cease to be a main road.

The construction and maintenance of main roads and controlled-access roads are the responsibility of the Main Roads Department. The Department also makes substantial financial provision for the construction and maintenance of important secondary roads and for the construction of developmental roads. The construction and maintenance of strategic roads and roads of access to Commonwealth property is undertaken by the Department for the Commonwealth Government.

Within its own district, each local government authority is responsible for the provision and upkeep of roads other than those provided by the Main Roads Department. In addition, the local authority is required by the Main Roads Act to maintain any developmental road situated in its district.

The following table shows the length of public roads open for vehicular traffic at 30 June 1969, classified according to Statistical Division (see map of Western Australia following Index). Included in the total are 6,412 miles of main roads, 7 miles of controlled access roads and 5,983 miles of important secondary roads.

ROADS OPEN FOR VEHICULAR TRAFFIC AT 30 JUNE 1969  
MILEAGE CLASSIFIED ACCORDING TO STATISTICAL DIVISION  
(Source: Main Roads Department)

Statistical Division	Formed roads				Unformed roads (b)	Grand total
	Sealed	Gravel surface	Formed only (a)	Total		
Perth Statistical Division ....	3,762	496	93	4,351	115	4,467
Other Divisions—						
South-West .....	2,234	2,517	1,380	6,131	12,300	18,431
Southern Agricultural .....	1,811	1,531	4,994	8,336	2,753	11,090
Central Agricultural .....	3,345	3,778	7,219	14,342	3,061	17,403
Northern Agricultural .....	1,970	3,177	3,901	9,049	2,305	11,353
Eastern Goldfields .....	1,572	1,454	3,588	6,614	5,153	11,767
Central .....	284	747	2,376	3,408	4,483	7,891
North-West .....	439	148	1,118	1,705	2,890	4,595
Pilbara .....	138	515	1,176	1,829	2,310	4,139
Kimberley .....	424	585	1,463	2,472	2,215	4,688
Total .....	12,218	14,452	27,215	53,886	37,471	91,357
WESTERN AUSTRALIA .....	15,980	14,948	27,308	58,237	37,586	95,824

(a) Comprises roads, mainly of natural surfaces, formed but not metalled or otherwise prepared, except for certain clearing, used for vehicular traffic.

(b) Roads, unprepared

### Vehicle Registration, Licences and Traffic Control

The *Traffic Act, 1919-1970* provides for the registration of vehicles, the issue of licences and the regulation of traffic throughout the State, and prescribes the fees payable in respect of the several types of licences required.

In Western Australia there is no single authority responsible for the licensing of vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area and in certain country districts in accordance with the provisions of the *Traffic Act Amendment Act (No. 2), 1969*; see further reference on page 460. At 1 March 1971 the Metropolitan Traffic Area comprised the Cities of Perth, Fremantle, Melville, Nedlands, South Perth, Stirling and Subiaco; the Towns of Canning, Claremont, Cockburn, Cottesloe, East Fremantle, and Mosman Park; the Shires of Armadale-Kelmscott, Bassendean, Bayswater, Belmont, Gosnells, Kwinana, Peppermint Grove, Rockingham and Serpentine-Jarrahdale; and parts of the Shires of Mundaring and Swan. Outside these areas of Police responsibility for vehicle licensing, each local government authority licenses vehicles in its own district.

The Traffic Act provides that the issue of drivers' and riders' licences and used car dealers' licences throughout the State shall be the function of the Police Department.

The following table shows the number of motor vehicles, classified according to type, on register in the Perth Statistical Division (see map of Western Australia following Index) and in the whole of Western Australia for selected years between 1946 and 1970. Vehicles owned by the Commonwealth Government are not licensed under the Traffic Act but are included in the figures. The table also gives the estimated number of vehicles per 1,000 of population and the number of persons per vehicle. The figures show that over this period of twenty-four years there has been a threefold increase in the ratio of vehicles to population.

### MOTOR VEHICLES ON REGISTER (a) AND RATIO TO POPULATION

At 30 June—	Motor cars and station wagons	Utilities, vans, trucks, omnibuses	Motor cycles and motor scooters	Total	Estimated number of vehicles per 1,000 of population (b)		Estimated number of persons per vehicle (b)	
					Motor cars and station wagons	All motor vehicles (a)	Motor cars and station wagons	All motor vehicles (a)
	('000)	('000)	('000)	('000)				
PERTH STATISTICAL DIVISION								
1946	20.0	9.7	4.5	34.2	68	116	14.7	8.6
1951	34.4	17.5	9.5	61.3	97	172	10.4	5.8
1956	65.4	25.9	9.3	100.7	155	23	6.4	4.2
1961	95.5	29.0	9.1	133.6	201	281	5.0	3.6
1966	153.9	35.2	6.3	195.4	275	349	3.6	2.9
1967	171.1	38.1	6.4	215.6	295	372	3.4	2.7
1968	189.3	41.2	6.7	237.2	312	391	3.2	2.6
1969	210.2	45.0	7.2	262.4	331	413	3.0	2.4
1970	233.1	49.2	8.0	290.3	352	438	2.8	2.3

### WESTERN AUSTRALIA (c)

1946	31.4	28.9	6.8	67.1	64	136	15.7	7.3
1951	56.2	47.9	14.5	118.7	97	205	10.3	4.9
1956	99.2	62.8	13.0	175.0	147	259	6.8	3.9
1961	141.6	71.0	12.6	225.2	192	306	5.2	3.3
1966	219.8	84.4	8.8	313.0	259	369	3.9	2.7
1967	240.5	87.7	8.9	337.1	274	385	3.6	2.6
1968	263.6	92.6	9.6	365.7	299	402	3.5	2.5
1969	288.7	96.6	10.4	395.8	305	418	3.3	2.4
1970	316.4	102.3	11.7	430.4	323	439	3.1	2.3

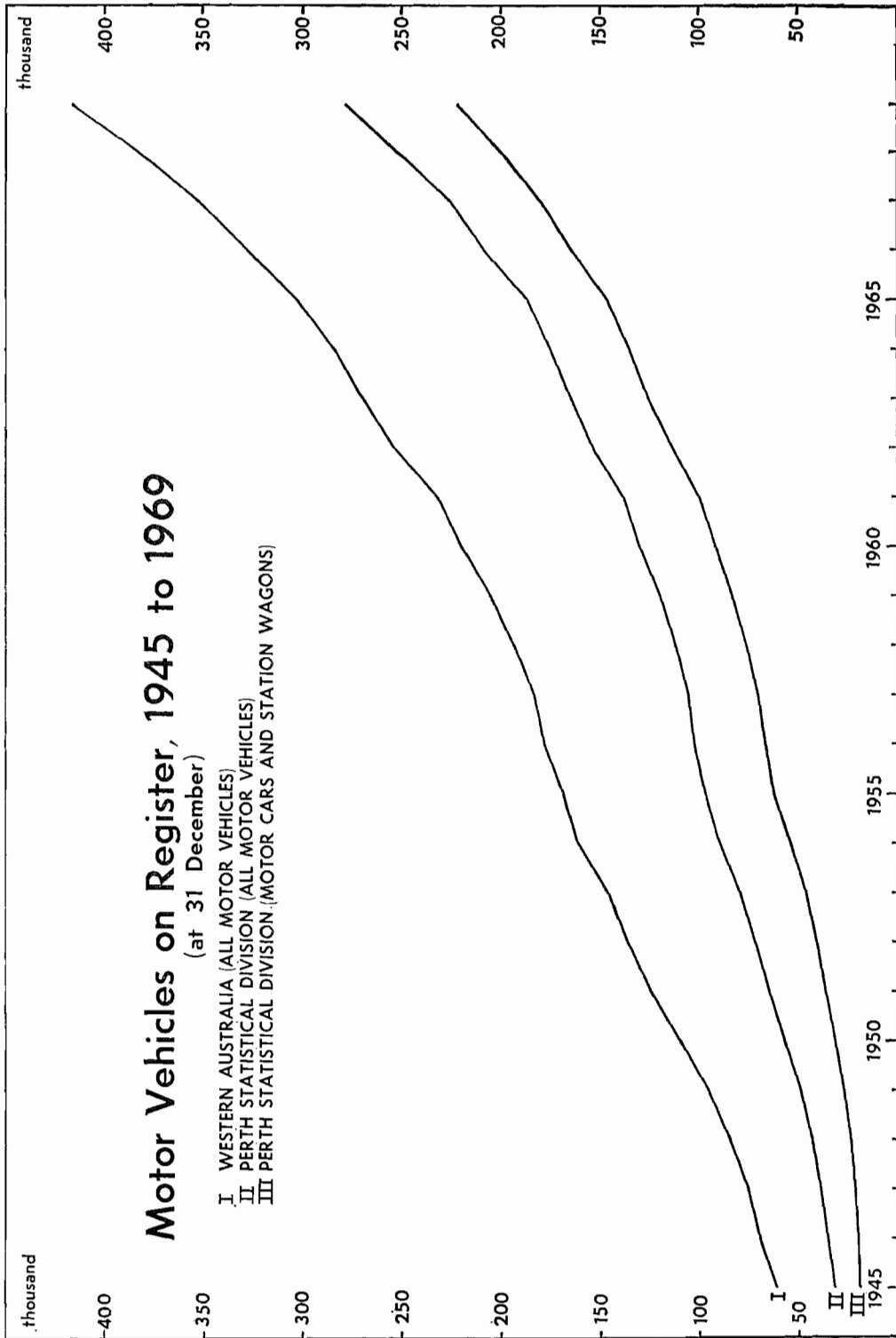
(a) Excluding tractors, trailers, caravans, and plant and equipment such as bulldozers, road graders and rollers, and mobile cranes.

(b) The estimates shown for 30 June 1967 and later are subject to revision in accordance with the results of the 1971 Census of Population.

(c) Includes Commonwealth Government-owned vehicles (other than those of the defence services) listed with the Commonwealth Motor Vehicle Registry, Canberra. At 30 June 1970 there were in Western Australia 2,268 such vehicles comprising 226 motor cars, 418 station wagons, 582 utilities, 427 panel vans, 529 trucks, 31 omnibuses and 55 motorcycles.

Traffic control in general is exercised by the Police Department in the Metropolitan Traffic Area (except for certain powers in relation to the parking of vehicles granted the Perth City Council by the *City of Perth Parking Facilities Act, 1956-1970*) and in other areas for which vehicle licensing and traffic control powers have been conferred on the Commissioner of Police. Outside these Police-controlled areas, control is vested by the Traffic Act in the local government authorities, each of which is required by the Act to appoint at least one traffic inspector for its district.

In June 1965, a Departmental Committee was appointed by the State Government to investigate country traffic control, and to consider and report upon the necessity for the establishment of a single traffic authority throughout the State responsible for traffic control only; licensing of vehicles only; or both functions.



The majority of the committee, in a report which was presented in April 1966, recommended that 'the Police Department be established as the sole authority responsible for the enforcement of the Traffic Act throughout the State'. A further majority recommendation was to the effect that 'licensing of vehicles throughout the State be made the responsibility of a single authority and that the Commissioner of Police is the appropriate authority to assume this responsibility.' Although the recommendations were not adopted by the Government, it was decided that a local authority exercising vehicle licensing and traffic control powers in any territory outside the Metropolitan Traffic Area might voluntarily transfer these powers to the Police Department. Legislative authority for any such transfer is contained in the *Traffic Act Amendment Act (No. 2), 1969* which provides that if a local authority, by resolution of its Council, so requires, the Minister may, by notice in the *Government Gazette*, confer on the Commissioner of Police all the powers and duties imposed on the local authority by the Traffic Act, other than those relating to road construction. The Shire Councils of Broome and West Kimberley were the first local government authorities to avail themselves of this provision, and the transfer of powers became effective from 1 January 1969. Other Shires which voluntarily transferred vehicle licensing and traffic control powers to the Police Department were Serpentine-Jarrahdale (1 January 1970), Esperance, Manjimup and Ravensthorpe (1 October 1970), Merredin (1 January 1971), Busselton (1 April 1971), Ashburton, Lake Grace, Murray and Wyndham-East Kimberley (gazetted for transfer on 1 July 1971).

### Finance for Roads

The principal source of revenue for road works in Western Australia is in the form of Commonwealth financial assistance authorised by a series of Acts, the first of which, the Main Roads Development Act, was passed in 1923. The legislation currently in operation for the provision of grants to the States for or in connection with roads is the *Commonwealth Aid Roads Act 1969*.

The *Commonwealth Aid Roads Act 1969* authorises the Commonwealth to grant an amount of \$1,252.05 million as financial assistance to the States in relation to roads during the five-year period from 1 July 1969 to 30 June 1974. The assistance comprises a 'principal grant' of \$1,200 million and a 'supplementary grant' of \$52.05 million. The principal grant is apportioned among the six States and must be spent on specified classes of roads and on road planning and research. Moneys are provided from the supplementary grant to the States of Western Australia, South Australia and Tasmania, and are available for the construction and maintenance of roads generally. The annual amounts payable from the principal grant increase from \$180 million in 1969-70 to \$310 million in 1973-74, while those payable from the supplementary grant decrease from \$13 million to \$6.80 million.

Western Australia's share of the principal grant of \$1,200 million is \$159.6 million, of which \$62.41 million is required to be spent on the construction of urban arterial roads, \$23.91 million on the construction of rural arterial roads, \$70.88 million on the construction and maintenance of other rural roads, and \$2.40 million on road planning and research. Western Australia's share of the supplementary grant of \$52.05 million is \$40.80 million.

Payment of moneys provided by the *Commonwealth Aid Roads Act 1969* is contingent on a State's expenditure on roads from its own resources. To qualify for the full amount of the grant a State must increase its annual expenditure on roads in proportion to the increase in the number of motor vehicles on the register in that State.

The *Traffic Act Amendment Act (No. 2), 1969* and the *Main Roads Act Amendment Act, 1969*, both of which came into operation on 1 July 1969, established a new system for the receipt and disbursement of moneys to be spent on roads. Other Western Australian Acts which provide revenue for road purposes are the *Road Maintenance (Contribution) Act, 1965-1970* (see page 274) and the *Transport Commission Act, 1966-1970* (see pages 274 and 468).



The *Traffic Act, 1919-1970* requires that there shall be paid to the Main Roads Trust Account, maintained under the Main Roads Act, the motor vehicle licence fees received by local government authorities, or by the Commissioner of Police as the licensing authority in the Metropolitan Traffic Area and other areas for which vehicle licensing (and traffic control) powers have been conferred on the Commissioner. Provision is made for the retention by these authorities of specified amounts to cover costs of administration in respect of motor vehicle licensing. The Commissioner of Police is also required to pay into the Account one-half of the fees which he receives on the issue or renewal of drivers' licences.

The *Main Roads Act Amendment Act, 1969* provides that there shall be paid to the Main Roads Trust Account moneys received from the Commonwealth as financial assistance in relation to roads; amounts payable under the provisions of the Traffic Act or any other Act; moneys appropriated by the Parliament; and payments by local government authorities in respect of permanent works and the maintenance of main roads and developmental roads. Moneys standing to the credit of the Account are used to meet expenditure by the Commissioner of Main Roads on the administration of the Act and the construction of roads and associated works, and to provide funds to local government authorities for roads and road works.

The Act provides that every local government authority shall be paid from the Main Roads Trust Account an annual grant calculated by applying a percentage increase to a 'base grant' specified for each authority. An additional grant is payable to any local government authority whose annual expenditure on road construction from its own resources exceeds a prescribed amount. The Act requires that one-half of the moneys received by a local authority in the form of grants shall be spent on the construction of urban arterial roads where its district is within the Perth Statistical Division, and on the construction of rural roads other than arterial rural roads where its district is outside the Division. The remaining moneys are to be applied to the construction and maintenance of roads generally.

Grants payable from the Main Roads Trust Account constitute the principal revenue available to local government authorities for road construction and maintenance. Other moneys may be provided from the ordinary revenue of a local authority or from loans raised for road purposes.

**Beef Cattle Roads.** In addition to grants made under the Commonwealth Aid Roads legislation, the Commonwealth Government provided financial assistance, during the six-year period ended 30 June 1967, in terms of a series of Western Australia Grant (Beef Cattle Roads) Acts, the first of which was passed in 1961. The aim of this assistance was to improve the standard of roads used for the transport of beef cattle in the Kimberley. During the period of the programme almost \$17 million was spent, the State Government matching Commonwealth contributions on a dollar for dollar basis. An extension of Commonwealth financial assistance is authorised by the *States Grants (Beef Cattle Roads) Act 1968*. The Act provides for a contribution of up to \$9.5 million as Western Australia's share of funds for a further programme of construction during a period of seven years commencing on 1 July 1967. The grants are again conditional upon equal expenditure by the State.

## ROAD PASSENGER TRANSPORT SERVICES

Motor omnibus services (as well as a passenger ferry service) in the metropolitan area are operated by the Metropolitan (Perth) Passenger Transport Trust, constituted under the *Metropolitan (Perth) Passenger Transport Trust Act, 1957-1966*. For the purposes of the Act, the metropolitan area is defined by a proclamation of 1 May 1958 as being 'all the land within a circle having a radius of 30 miles from the Perth Town Hall' and in addition, an area bounded by the South Western Highway and the ocean, extending southward to an east-west line one mile south of the town of Pinjarra. The trolley-bus services formerly operated by the Trust were discontinued on 29 August 1969.

Road transport of passengers outside the metropolitan area is provided by the railways road services (see pages 451-2), which cover long-distance routes between Perth and country centres; by The Eastern Goldfields Transport Board, which serves the Kalgoorlie-Boulder urban area under an agreement with the Kalgoorlie and Boulder local government authorities; and by privately-owned omnibus services, which operate mainly in and around country centres. Extensive tourist services operate mainly from Perth.

In certain country areas, children are taken to and from school by motor bus at government expense. In 1969 the cost to the Government of school transport services was \$2,798,592. The number of omnibuses engaged was 676. They travelled a daily total of 46,323 miles and carried 24,030 children daily.

Details of the operations of omnibus services in Western Australia during the five years ended 30 June 1969 are given in the following table.

## OMNIBUS SERVICES (a)

Year	Route miles operated	Omnibuses at end of year	Omnibus miles run '000	Passengers carried '000	Employees at end of year	Operating revenues (b) \$'000	Operating expenses \$'000	Depreciation \$'000	Interest \$'000
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## METROPOLITAN (PERTH) PASSENGER TRANSPORT TRUST (c) (d)

1964-65	575	590	16,519	49,967	1,685	5,169	5,386	584	386
1965-66	614	626	17,893	52,268	1,759	5,622	6,095	601	408
1966-67	626	653	18,708	53,126	1,764	6,676	6,529	581	426
1967-68	642	681	19,031	52,929	1,753	7,012	6,734	630	452
1968-69	628	688	19,736	54,713	1,737	7,205	7,320	626	463

## WESTERN AUSTRALIAN GOVERNMENT RAILWAYS

1964-65	3,732	65	1,949	260	140	491	495	52	23
1965-66	3,730	60	2,061	255	140	529	580	60	26
1966-67	3,572	64	1,945	237	137	542	597	75	33
1967-68	3,958	61	1,875	228	142	549	610	76	34
1968-69	4,045	63	1,958	234	145	596	635	104	66

## THE EASTERN GOLDFIELDS TRANSPORT BOARD

1964-65	14	12	171	675	13	52	54	8	....
1965-66	15	12	171	656	14	50	59	3	....
1966-67	15	12	185	684	14	57	60	5	....
1967-68	15	15	232	734	18	69	78	9	(e)
1968-69	14	19	275	791	19	84	82	11	(e)

## PRIVATE

1964-65	616	37	791	1,446	45	159	155	20	3
1965-66	628	37	752	1,379	48	148	155	15	1
1966-67	4,223	41	847	1,431	51	238	233	30	3
1967-68	3,895	35	1,231	1,162	48	382	390	30	4
1968-69	(f)	37	1,098	1,199	46	419	440	38	8

(a) Excludes school transport services and tourist services. (b) Passenger fares and subsidies only. (c) For passenger ferry operations, see page 465. (d) Includes operations of trolley-buses. (e) Less than \$500. (f) Not available.

## MOTOR VEHICLE USAGE

Some information on the usage of motor vehicles was obtained in a sample survey conducted throughout Australia by the Commonwealth Bureau of Census and Statistics in November 1963. The sample comprised 19,676 vehicles, of which 2,742 were cars or station wagons. Because the survey results are based on a sample, they are subject to sampling variability and may therefore differ somewhat from the results that would

have been obtained from a complete enumeration of all registered motor vehicles. Details, including particulars relating to goods-carrying vehicles, appear in *Survey of Motor Vehicle Usage, 1963—Preliminary Bulletin: States and Territories* published by the Commonwealth Statistician, Canberra.

## ROAD TRAFFIC ACCIDENTS

Statistics of road traffic accidents are prepared from information concerning accidents in public thoroughfares, as reported to officers of the Police Department in the Metropolitan Traffic Area and other areas as prescribed (see page 460) and, outside those areas, to traffic inspectors employed by local government authorities and/or police officers. Accidents involving casualties are those which result in the death of any person within a period of thirty days after the accident, or in which any person suffers bodily injury to an extent requiring surgical or medical treatment.

The following table shows, for each year during the period 1965 to 1969, the number of accidents involving casualties which occurred in Western Australia and in Australia.

The number of persons injured per 100,000 of mean population was higher in Western Australia than the corresponding Australian figure in each year except 1965 when the rates were identical. However, the number of persons injured per 10,000 motor vehicles on register was higher in Australia as a whole than in Western Australia for each of the years shown.

ROAD TRAFFIC ACCIDENTS AND CASUALTIES  
WESTERN AUSTRALIA AND AUSTRALIA

Particulars	1965	1966	1967	1968	1969
WESTERN AUSTRALIA					
Accidents involving casualties—					
Total .....	4,170	4,346	4,659	4,708	4,809
Per 10,000 motor vehicles on register .....	143	139	139	129	122
Number of persons killed—					
Total .....	252	253	256	320	311
Per 10,000 motor vehicles on register .....	9	8	8	9	8
Per 100,000 of mean population (a) .....	30	30	29	35	33
Number of persons injured—					
Total .....	5,638	5,997	6,426	6,553	6,788
Per 10,000 motor vehicles on register .....	194	192	191	180	172
Per 100,000 of mean population (a) .....	682	706	733	720	717
AUSTRALIA					
Accidents involving casualties—					
Total .....	55,932	55,538	57,253	58,759	62,597
Per 10,000 motor vehicles on register .....	149	141	139	135	136
Number of persons killed—					
Total .....	3,164	3,242	3,166	3,382	3,502
Per 10,000 motor vehicles on register .....	8	8	8	8	8
Per 100,000 of mean population (a) .....	28	28	27	28	28
Number of persons injured—					
Total .....	77,723	77,837	80,021	82,210	87,864
Per 10,000 motor vehicles on register .....	207	198	194	189	191
Per 100,000 of mean population (a) .....	682	671	677	683	713

(a) Figures for 1966 and later are subject to revision after the 1971 Population Census.

In the next table road traffic accident casualties which occurred in Western Australia during the five years ended 31 December 1969 are classified according to type of road user. The figures shown in the category 'Other' refer to such persons as bystanders, train drivers, riders of horses and drivers of animal-drawn vehicles.

## ROAD TRAFFIC ACCIDENTS—CASUALTIES ACCORDING TO TYPE OF ROAD USER

Type of road user	1965	1966	1967	1968	1969
PERSONS KILLED					
Drivers of motor vehicles ....	97	101	113	143	124
Motor cyclists (a) ....	12	4	6	7	18
Pedal cyclists ....	13	9	4	8	9
Passengers—					
Pillion ....	3			1	3
Other ....	76	88	75	105	84
Pedestrians ....	51	51	58	56	73
Other ....	....	....	....	....	....
Total ....	252	253	256	320	311
PERSONS INJURED					
Drivers of motor vehicles ....	2,092	2,351	2,680	2,680	2,863
Motor cyclists (a) ....	371	342	329	328	325
Pedal cyclists ....	357	344	339	275	340
Passengers—					
Pillion ....	68	44	45	54	51
Other ....	1,996	2,196	2,263	2,431	2,468
Pedestrians ....	751	714	763	781	715
Other ....	3	6	7	4	26
Total ....	5,638	5,997	6,426	6,553	6,788

(a) Includes riders of motor scooters.

The following table gives a classification of casualties according to the ages of persons killed and persons injured during each year of the period from 1965 to 1969.

## ROAD TRAFFIC ACCIDENTS—CASUALTIES CLASSIFIED ACCORDING TO AGE

Year	Age last birthday (years)										Total		
	0-4	5-6	7-16	17-20	21-29	30-39	40-49	50-59	60 and over	Not stated			
PERSONS KILLED													
1965	....	....	17	5	13	35	41	31	24	32	54	....	252
1966	....	....	9	1	29	34	52	25	19	47	37	....	253
1967	....	....	3	4	22	48	43	29	27	26	52	2	256
1968	....	....	11	6	29	54	75	35	29	27	51	3	320
1969	....	....	13	6	27	56	70	35	27	21	56	....	311
PERSONS INJURED													
1965	....	....	248	119	751	1,182	1,016	612	486	415	389	420	5,638
1966	....	....	209	130	791	1,342	1,033	618	545	460	405	464	5,997
1967	....	....	234	121	792	1,344	1,185	627	603	482	457	581	6,426
1968	....	....	233	142	759	1,364	1,276	676	561	452	409	681	6,553
1969	....	....	261	134	867	1,383	1,293	728	608	424	501	589	6,788

Road traffic accidents during the years ended 31 December 1968 and 1969 are classified in the next table according to nature of accident and type of vehicle involved. It should be noted that, as accidents (and casualties) may involve more than one type of vehicle and, in such cases, are classified to each type involved, it is not appropriate to derive totals by adding the figures shown in the second part of the table.

For additional information on road traffic accidents in this State, the reader is referred to the mimeographed bulletin *Road Traffic Accidents involving Casualties* issued quarterly and annually by the Western Australian Office of the Bureau of Census and Statistics.

### ROAD TRAFFIC ACCIDENTS NATURE OF ACCIDENT AND TYPE OF VEHICLE INVOLVED

Nature of accident and type of vehicle involved	1968			1969		
	Accidents involving casualties	Casualties		Accidents involving casualties	Casualties	
		Persons killed	Persons injured		Persons killed	Persons injured
NATURE OF ACCIDENT						
Vehicle colliding with—						
Moving or stationary vehicle (a) ....	2,477	121	3,807	2,738	102	4,249
Railway vehicle ....	9	2	11	16	1	37
Pedestrian ....	790	54	777	731	72	702
Parked vehicle ....	121	1	170	124	5	163
Fixed object ....	12	....	16	12	....	19
Animal or animal-drawn vehicle ....	14	2	17	14	2	15
Vehicle overturning or leaving road ....	1,182	129	1,648	1,075	121	1,501
Passenger accident ....	28	4	28	25	3	22
Other accidents ....	75	7	79	74	5	80
Total ....	4,708	320	6,553	4,809	311	6,788

#### TYPE OF VEHICLE INVOLVED (b)

Motor vehicle—						
Car, other than taxi ....	3,986	241	5,719	4,073	236	5,921
Taxi ....	73	4	94	88	4	124
Van, utility ....	788	57	1,131	882	73	1,277
Truck ....	296	42	382	369	25	503
Semi-trailer ....	47	6	59	56	10	84
Omnibus; trolley-bus ....	56	8	72	62	2	110
Motor cycle, motor scooter ....	357	8	404	377	22	411
Other (c) ....	27	5	27	26	4	30
Pedal cycle ....	286	9	289	348	9	346

(a) Excludes parked vehicles.

(b) See letterpress immediately preceding table.

(c) Includes unidentified vehicles.

### PASSENGER FERRY SERVICE

The Metropolitan (Perth) Passenger Transport Trust operates a passenger ferry service across the Swan River from Perth to South Perth. Particulars of private charter excursions are excluded from the figures in the following table, other than those which relate to operating revenues and expenses.

#### PASSENGER FERRY SERVICE

Year	Boats at end of year	Miles run (a)	Passengers carried (a)	Employees at end of year	Operating revenues	Operating expenses	Depreciation	Interest
1965-66 ....	5	21,588	238,273	9	\$ 34,200	\$ 39,407	\$ 493	\$ 540
1966-67 ....	5	21,784	253,160	9	40,925	41,096	564	623
1967-68 ....	5	22,308	311,888	9	47,778	47,974	964	814
1968-69 ....	5	22,524	336,146	9	55,368	53,462	1,216	766
1969-70 ....	5	22,328	367,643	9	70,079	58,233	3,152	5,098

(a) Excludes private charter operations.

### AIR TRANSPORT

The supervision and control of civil air transport throughout Australia is the responsibility of the Commonwealth Department of Civil Aviation. Its regulatory functions include the licensing of air crew, engineering staff, airlines, charter and aerial work operators, flying schools and aerodromes; the approval of fares, freight rates and timetables; and the establishment and operation of air traffic control procedures. It is also responsible for the conduct of search and rescue operations; the provision and maintenance of government aerodromes, aeronautical communication systems and radio navigational

aids; and the specification of required meteorological services. The Department co-operates with the State Transport Commission which has a statutory licensing function in respect of air transport facilities within the State.

An extensive system of regular air services operates in Western Australia for the transport of passengers, freight and mails. The international airport seven miles from Perth is used by international, interstate and intrastate airlines providing services to South Africa, to Europe via Singapore, to Hong Kong and Japan via Singapore, to all Eastern States capital cities and to many towns throughout Western Australia. There are thirty-six centres served by regular airlines, jet services operating between Perth and Kalgoorlie, Dampier, Newman, Port Hedland, Broome, Derby and Kununurra while turbo-prop services operate between Perth and the remaining twenty-eight centres. Commuter services operate to another thirty-three places in the Pilbara, Murchison and Eastern Goldfields districts and to Albany, Esperance, Norseman and Rottneest in the southern part of the State. (The principal air routes in or through Western Australia at 31 December 1968 are shown on the map of the State following the Index.)

In addition to the regular airline and commuter services there is a total of 200 aircraft, based at centres throughout Western Australia, available for charter work to or from any point in Western Australia or to other States. A further 328 aircraft are engaged on aerial work, such as aerial agriculture, aerial surveys, etc. or on private operations.

Perth Airport is equipped with an Instrument Landing System and is suitable for use by the latest aircraft types including the Boeing 747. In the five years ended 1969 the number of airline passengers using Perth Airport more than doubled to a total of 435,669.

There are twenty-five aerodromes owned and maintained by the Commonwealth Government in Western Australia in addition to sixty-one licensed aerodromes owned privately or by local government authorities, while there are more than 400 landing strips suitable for use by light aircraft scattered throughout the State.

The Royal Flying Doctor Service operates from a number of centres and details of its activities are given in Chapter V, Part 3.

**Airport Operations.** The following table, compiled from information published by the Department of Civil Aviation, provides a summary of operations at principal airports in Western Australia during each of the years 1967 to 1969. The figures refer only to regular public transport operations on scheduled services by licensed airlines and do not include charter and commuter services.

CIVIL AVIATION—TRAFFIC HANDLED AND AIRCRAFT MOVEMENTS  
AT PRINCIPAL AIRPORTS

Airport	Passengers (a)			Freight (short tons) (b)			Aircraft movements (c)		
	1967	1968	1969	1967	1968	1969	1967	1968	1969
Albany (d) .....	3,354	2,529	(d)	15	11	(d)	394	290	(d)
Barrow Island .....	4,554	3,526	5,203	154	110	101	1,014	981	804
Broome .....	6,448	7,221	6,930	215	238	183	1,806	2,044	1,701
Carnarvon .....	8,891	6,951	10,231	209	181	165	2,303	1,412	1,562
Dampier .....	9,946	12,901	15,077	216	312	295	1,328	1,322	1,290
Derby .....	14,152	18,586	20,418	747	938	1,172	2,099	2,584	2,845
Esperance (d) .....	2,889	2,757	(d)	61	81	(d)	314	294	(d)
Geraldton .....	17,943	19,372	18,550	103	101	77	2,780	2,455	1,589
Kalgoorlie .....	6,409	9,828	18,527	159	215	161	702	757	710
Kununurra .....	3,939	5,277	8,789	219	260	393	603	722	1,291
Learnmonth .....	8,685	5,428	5,609	204	112	97	1,089	1,329	1,392
Meekatharra (d) .....	2,277	1,851	(d)	77	57	(d)	1,886	1,485	(d)
Onslow .....	3,948	2,480	2,526	98	71	49	1,436	1,026	782
Perth—									
Internal (e) .....	293,838	339,883	381,839	6,868	8,311	8,241	8,234	8,962	8,906
International .....	35,639	49,169	53,830	575	729	781	1,838	2,216	1,864
Port Hedland .....	19,580	37,468	36,732	846	1,468	1,217	2,814	3,448	2,841
Roebourne .....	1,714	4,174	5,036	52	129	126	602	699	460
Tom Price .....	4,276	8,089	9,348	73	179	203	692	862	836
Wittenoom .....	1,940	1,794	1,251	65	60	33	1,372	930	826
Wyndham .....	4,370	5,139	3,619	305	392	246	1,146	1,111	996

(a) Total of embarkations and disembarkations. (b) Total of freight loaded and unloaded. Short ton = 2,000 lb.  
(c) Total of arrivals and departures. (d) During 1969 served by commuter services only. (e) Interstate and intrastate

**Casualty Accidents.** The following table shows the number of accidents involving civil aircraft which resulted in death or serious injury. The statistics relate to the following classes of operation: regular public transport; charter flights; aerial agriculture; training; other aerial work; private; and gliding.

**CIVIL AVIATION—ACCIDENTS INVOLVING CASUALTIES (a)**

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
<b>WESTERN AUSTRALIA</b>					
Number of—					
Accidents (a) ....	4	3	2	3	6
Persons killed ....	2	3	2	(b) 29	2
Persons seriously injured	3	4	1	2	9
<b>AUSTRALIA</b>					
Number of—					
Accidents (a) ....	37	38	36	17	46
Persons killed ....	29	66	47	(b) 47	49
Persons seriously injured	28	24	29	20	40

(a) Accidents involving civil aircraft which resulted in death or serious injury. Excludes parachutists killed on contact with earth after an uninterrupted fall. Excludes accidents outside Australia involving aircraft on the Australian register. (b) Includes 26 persons killed in one accident which occurred on 31 December 1968.

**TRANSPORT CO-ORDINATION**

**State Transport Co-ordination Act**

The *State Transport Co-ordination Act, 1966*, which came into operation on 19 June 1967, repeals the *State Transport Co-ordination Act, 1933-1961*. The Act provides for the appointment of a Director General of Transport, a Transport Advisory Council and a Transport Users' Board.

The duties of the Director General are to recommend to the Minister transport policy or changes in transport policy and measures for achieving policy objectives and the co-ordination of the various forms of transport service; to implement such policies and measures; to provide for research in transport planning and operation and in the economics of every form of transport; to co-ordinate capital works programmes for public transport services; to inquire into existing transport services; to recommend the provision of road transport services; to examine and report on any proposal for the construction of a new railway; to recommend the closure or partial suspension of any transport service, including a railway; and to advise the Minister on the administration of specified Acts relating to transport.

The Transport Advisory Council comprises the Director General of Transport (as Chairman), the Commissioner of Railways, the Commissioner of Main Roads, the Commissioner of Transport, the Chairman of the Metropolitan (Perth) Passenger Transport Trust, the Chairman of the Western Australian Coastal Shipping Commission, a representative of the West Australian Road Transport Association, and a representative of operators of regular air transport services. The duties of the Council are to formulate proposals in respect of, and make recommendations on, any matter referred to it by the Minister or the Director General of Transport, or that it may bring forward of its own motion.

The Transport Users' Board consists of the Director General of Transport (as Chairman) and four persons appointed by the Governor on the nomination of the Minister. These four members must be persons who, in the opinion of the Minister, are capable of assessing the financial and economic effect on transport users of any proposed or existing transport policy, two of them being persons particularly versed in the transport needs of rural industries. The Transport Users' Board is charged with the duty of considering and, where it so resolves, of making recommendations on, any matter affecting a transport service operating in the State, or concerning the lack or inadequacy of a transport service.

### Transport Commission Act

The *Transport Commission Act, 1966-1970* provides for the appointment of a Commissioner of Transport. Under the direction of the Minister, the Commissioner is required to call tenders for the provision of road transport where, in the opinion of the Minister, the requirements of a district are not adequately served by any form of transport; to administer and direct the payment of such subsidies with respect to the provision of transport as may be authorised pursuant to the Act; and to consider and determine all applications for licences in respect of public vehicles. In regard to such licences the Commissioner may specify any particular conditions concerning the granting or holding of a licence, and may determine, in respect of any particular licence or group of licences, the conditions that shall be imposed on the granting and holding of such licences.

The public vehicles licensed by the Commissioner are omnibuses (other than those operated by the Metropolitan (Perth) Passenger Transport Trust), commercial goods vehicles, and aircraft.

In the licensing of omnibuses the Commissioner is empowered to prescribe the routes to be operated, the stopping places at which passengers may be picked up or set down, the fares to be charged, the timetables to be observed and the maximum number of passengers to be carried at any one time on any vehicle. The Commissioner may impose such other conditions as he thinks proper in the public interest.

All commercial goods vehicles operating on public roads are required to be licensed, except those which operate solely in the area within a radius of twenty miles from the General Post Office, Perth, or within a radius of twenty miles from the owner's place of business (or, where such place of business is situated more than forty miles from the General Post Office, Perth, within a radius of twenty-five miles). Exemptions from licensing provisions also apply to vehicles used for the transport of specified types of goods, mainly primary produce including forest products, minerals and livestock, or for the transport of goods within particular areas or between particular points.

Aircraft licences issued by the Commissioner relate to regular services and charter flights. Aircraft exempted from the licensing provisions of the Act are those operated solely in connection with the Royal Flying Doctor Service or in the course of aerial spraying, crop dusting, seed sowing, fertiliser distribution, photography, geophysical surveying, dingo baiting or whale or fish spotting.

The *Road and Air Transport Commission Act Amendment Act, 1970*, which at 21 May 1971 had not been proclaimed operative, widens the scope of the original Act to include control of the operations of ships engaged in the coasting trade. Under the provisions of the 1970 legislation, ships other than those operated by the Western Australian Coastal Shipping Commission may not engage in the coasting trade unless authorised to do so by a licence or permit granted by the Commissioner of Transport.

Financial transactions are recorded in a Transport Commission Fund account as required by the Act. The principal revenues of the Fund are receipts from licence and permit fees and amounts received from the Treasury for distribution in the form of subsidy to transport operators and others in certain areas. The expenditure from the Fund includes amounts necessary to meet administration costs, disbursements to the Main Roads Department and to local government authorities for the maintenance and improvement of roads, moneys required to be held in trust for the provision and maintenance of landing grounds, and the payment of subsidies. Subsidies are paid principally on the cartage of grain and fertilisers, but also on the air transport of perishable goods to remote parts of the State and on travel, mainly by air, by students normally resident in those areas.

### Taxi-cars (Co-ordination and Control) Act

The *Taxi-cars (Co-ordination and Control) Act, 1963-1970* constitutes a Taxi Control Board of seven members to provide for the co-ordination and control of taxi-cars and the registration and conduct of taxi-car drivers in the Metropolitan Traffic Area and such other areas as may be declared. The Act provides that the Board shall consist



of the Commissioner of Transport (as Chairman); a member of the police force appointed by the Commissioner of Police; and five persons, appointed by the Governor, comprising one to represent the interests of local authorities, chosen from a panel of names that is obtained by each local authority submitting the name of one person; one nominated by the W.A. Taxi Operators' Association; two who are taxi-car owners or operators and who are elected by taxi-car owners and operators; and one nominated by the Metropolitan (Perth) Passenger Transport Trust.

The principal functions of the Board are the formulation of schemes for the co-ordination and control of taxis; the determination of the number and kind of taxis to be licensed; the issue of licences; the determination of fares and other charges; the supervision of the operation of taxis and the regulation of stands; the registration of, and the control of the conduct and dress of, drivers; and the enforcement of regulations made under the Act.

It is provided that the number of taxis that may be licensed to operate within the Metropolitan Traffic Area shall not at any time exceed one for every 700, or be less than one for every 800, of the population of the area.

The Act establishes a Taxi Control Fund for the receipt of fees payable on the issue, renewal or transfer of licences. The expenses of the administration of the Act are paid from the Fund.

*Chapter IX—continued*  
**Part 4—Communication**

**POSTS, TELEGRAPHS AND TELEPHONES**

The first postmasters in the Colony of Western Australia were appointed at Perth and Fremantle in 1830 and a Postal Department was established by the Colonial Government in 1834. Telegraphic communication, between Perth and Fremantle, was inaugurated in 1869 by means of a private line, which was purchased by the Government in 1871. A telephone exchange system, installed and operated by the Government, was opened at Perth in 1887.

In 1901, following the federation of the Australian Colonies, the post, telegraph and telephone services of the State Governments were transferred to the Commonwealth Government. The Post and Telegraph Act of 1901 placed the services under the control of a Commonwealth Minister to be known as the Postmaster-General.

The following table shows the number of persons employed by the Postmaster-General's Department in Western Australia, and the number of post offices and telephone offices throughout the State at 30 June in each year from 1966 to 1970. Full-time employees are those directly under the control of the Department. The remainder, shown as 'Other employees', provide services, which may or may not occupy their full time, under contract or in return for payments appropriate to work performed. 'Non-official' post offices are conducted by persons who are not members of the Commonwealth Public Service, and are frequently operated in conjunction with some other business activity. 'Telephone offices' are those where trunk-line calls and local calls may be made and telegrams lodged by members of the public, but which do not provide other postal facilities. Multi-coin public telephones are not included.

**POSTMASTER-GENERAL'S DEPARTMENT—NUMBERS OF EMPLOYEES AND OFFICES  
 WESTERN AUSTRALIA**

Particulars	At 30 June—				
	1966	1967	1968	1969	1970
<b>Full-time employees—</b>					
Permanent officers .....	5,065	5,344	5,561	5,808	6,001
Temporary and exempt officers .....	1,428	1,600	1,904	2,156	2,678
<b>Total .....</b>	<b>6,493</b>	<b>6,944</b>	<b>7,465</b>	<b>7,964</b>	<b>8,679</b>
<b>Other employees—</b>					
Non-official postmasters and staff .....	542	492	492	482	461
Telephone office-keepers .....	242	224	202	183	161
Mail contractors (a) .....	292	329	323	323	305
Part-time employees .....	262	305	314	325	340
<b>Total .....</b>	<b>1,338</b>	<b>1,350</b>	<b>1,331</b>	<b>1,313</b>	<b>1,267</b>
<b>Total, Employees .....</b>	<b>7,831</b>	<b>8,294</b>	<b>8,796</b>	<b>9,277</b>	<b>9,946</b>
<b>Post offices—</b>					
Official .....	151	153	156	158	161
Non-official .....	484	477	476	468	445
<b>Telephone offices .....</b>	<b>241</b>	<b>222</b>	<b>198</b>	<b>181</b>	<b>162</b>
<b>Total, Offices .....</b>	<b>876</b>	<b>852</b>	<b>830</b>	<b>807</b>	<b>768</b>

(a) Includes persons employed by contractors to drive vehicles on mail runs.

Figures relating to the cash receipts and expenditure of the Department in Western Australia during each of the financial years 1968-69 and 1969-70 are given in the following table. They represent actual collections and payments in each year, as shown by records kept for Treasury purposes. Some additional items of departmental revenue and expenditure are not apportioned to States and therefore do not appear in the table. In 1968-69 a new system of classification of items of receipt and expenditure was adopted and consequently the figures shown in the table are not comparable with those for 1967-68 and earlier years.

**POSTMASTER-GENERAL'S DEPARTMENT**  
**CASH RECEIPTS AND EXPENDITURE—WESTERN AUSTRALIA**  
 (\$'000)

Particulars	1968-69	1969-70
<b>CASH RECEIPTS (a)</b>		
Postal .....	10,698	11,567
Telephone .....	26,818	30,452
Telegraph .....	1,199	1,523
Proceeds of sales .....	375	493
Recoverable works .....	1,914	2,058
International services .....	152	223
<b>Total .....</b>	<b>41,155</b>	<b>46,317</b>
<b>CASH EXPENDITURE (b)</b>		
Salaries and wages .....	27,139	32,585
Material .....	22,390	26,203
Carriage of mails by contractors .....	749	781
Buildings, sites, properties .....	3,122	6,025
Accommodation services .....	1,805	2,026
Other administrative expenses (c) .....	3,343	4,224
<b>Total .....</b>	<b>58,547</b>	<b>71,844</b>

(a) Actual collections during the year as taken from the cash records of the Post Office.  
 (b) Actual payments made during the year for all Post Office purposes.  
 (c) Major items within this classification are travelling allowances, repairs to plant, engineering contract works and hire of vehicles.

**POSTMASTER-GENERAL'S DEPARTMENT—PROFIT OR LOSS (a) OF SERVICES**  
**AUSTRALIA**  
 (\$'000)

Particulars	1967-68			1968-69			1969-70		
	Postal	Telecommunications	All services	Postal	Telecommunications	All services	Postal	Telecommunications	All services
Earnings .....	138,179	364,478	502,656	154,936	412,272	567,208	161,866	463,378	625,244
Working expenses .....	152,210	281,659	433,869	155,947	314,475	470,422	172,948	351,393	524,341
Profit or loss before charging interest .....	—14,032	82,819	68,787	—1,011	97,797	96,785	—11,082	111,985	100,903
Interest .....	6,129	72,307	78,436	7,689	81,059	88,749	8,786	90,135	98,921
Profit or loss after charging interest .....	—20,161	10,512	—9,648	—8,701	16,738	8,037	—19,868	21,850	1,982

(a) Minus sign (—) denotes loss.

As the figures shown in the first table on this page relate to actual collections and payments made, they do not represent the net results of the Department's operations for the year. The annual net results of the operations throughout Australia of each service, for

the three years ended 30 June 1970 after providing for working expenses (including depreciation, superannuation and furlough liability) and interest charges are shown in the previous table. The amounts appearing under the heading of *Interest* represent interest on funds provided by the Treasury.

### Posts

In the following table, postal matter handled in Western Australia during each year from 1965-66 to 1969-70 is dissected according to the type of article dealt with, and whether received from overseas or posted for delivery in Australia or to an overseas destination.

#### POSTAL ARTICLES HANDLED (Thousands)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Posted for delivery within Australia—					
Ordinary postal articles—					
Letter-form .....	143,192	153,082	159,093	153,580	159,151
Other .....	13,540	13,861	13,252	13,753	14,104
Parcels (a) .....	1,045	1,149	1,158	1,039	1,381
Registered articles (b) .....	659	663	667	687	751
Posted for delivery overseas—					
Ordinary postal articles—					
Letter-form .....	6,437	6,827	7,333	8,218	9,165
Other .....	869	1,050	995	985	1,009
Parcels (a) .....	31	32	42	40	53
Registered articles (b) .....	53	60	78	84	96
Received from overseas—					
Ordinary postal articles—					
Letter-form .....	3,961	5,213	8,508	5,118	5,679
Other .....	6,698	6,653	6,948	6,204	3,344
Parcels (a) .....	79	93	106	119	133
Registered articles (b) .....	49	50	53	56	67

(a) Includes registered, cash on delivery and duty parcels.

(b) Excludes registered parcels; see note (a).

### Telegraphs and Telephones

The next two tables relate to telegraph and telephone services in Western Australia in each financial year from 1965-66 to 1969-70. Telephone services comprise ordinary exchange services (*i.e.* those which provide direct access to the exchange system by means of exclusive use of an exchange line), duplex services, party-line services, private branch exchange services and public telephones. The numbers shown as 'Telephone instruments in service' relate to those through which direct access to the exchange system may be obtained.

At 30 June 1970, the single wire mileage of conductors in telegraph and telephone cables in Western Australia was 1,734,323. The single wire mileage of aerial wires was 117,398 and the mileage of pole routes was 15,672. There were 3,717 tube miles of coaxial cable.

#### TELEGRAPHS

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of—					
Offices (a) .....	876	852	830	807	768
Telegrams—					
Within Australia—Dispatched .....	'000 2,160	'000 2,245	'000 2,359	'000 2,516	'000 2,435
Beyond Australia—Dispatched .....	110	119	133	152	188
Received .....	97	107	(b)	(b)	(b)
Total .....	207	227	(b)	(b)	(b)

(a) At 30 June.

(b) Not available.

## TELEPHONES (a)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of—					
Exchanges	765	750	745	749	746
Services—					
Metropolitan (b)	86,787	93,528	101,451	112,510	127,199
Other	41,236	44,161	48,211	53,181	58,857
Total	128,023	137,689	149,662	165,691	186,056
Telephone instruments in service—					
Total	176,256	191,031	208,343	231,845	256,303
Per 100 of population (a)	20.8	(c) 21.8	(c) 22.9	(c) 24.5	(c) 26.2

(a) At 30 June. (b) Services connected to exchanges located within 10 miles of the General Post Office, Perth. (c) Subject to revision after the 1971 Census of Population.

The teleprinter exchange service (telex) was introduced in Perth in December 1956. This service enables a subscriber's teleprinter to be connected with that of any other subscriber in the local network or networks in other States.

## TELEPRINTER EXCHANGE NETWORK (TELEX)

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Number of—					
Services at 30 June	200	271	354	477	686
Local calls	7,992	(a)	(a)	(a)	(a)
Trunk calls	119,312	(a)	(a)	(a)	(a)
Total calls (b)	136,381	253,955	483,107	726,794	1,076,377

(a) Not available separately.

(b) Includes Post Office official traffic.

## RADIOCOMMUNICATION

The Overseas Telecommunications Commission (Australia) is the authority responsible for the operation of telecommunication services between Australia and other countries, with ships at sea and to and between Australia's external Territories.

The Commission was established under the provisions of the *Overseas Telecommunications Act* 1946 which implemented a recommendation of the 1945 Commonwealth Telecommunications Conference for national ownership of the external telecommunication services of the British Commonwealth countries concerned. In 1966 the Commonwealth countries completed a review of the machinery for their collaboration in telecommunications and, as a result, the Commonwealth Telecommunications Organisation was established. The purpose of this body is to promote the efficient exploitation and development of the Commonwealth external telecommunications system.

A number of countries, including Australia, agreed in 1964 to establish a global commercial communications satellite system and Australia, represented by the Commission, is a member of the management body of the sixty-nine nation International Telecommunications Satellite Consortium (INTELSAT).

The Commission operates three 'standard' earth stations (at Carnarvon in Western Australia, Ceduna in South Australia and Moree in New South Wales) which can communicate via satellite with stations in other countries. The standard station at Carnarvon was brought into service on 1 October 1969, enabling a non-standard earth station at Carnarvon to be released for the full-time performance of telemetry, tracking and command functions for the INTELSAT organisation.

The transmission facilities used by the Commission in its external operations are submarine cables, satellites and high frequency radio. It operates a coastal radio service and, in association with the Post Office within Australia and with communication carriers in other Commonwealth and foreign countries, provides public message telegram, telephone, telex, photo-telegram, leased circuit and television services to most countries and places throughout the world.

The coastal radio service provides, as its principal function, essential maritime communications, including distress signals, navigation warnings, air-sea rescue service and radio-medical service messages, meteorological messages and time signals, as well as naval traffic as required. It provides also, by radiotelegraph and radiotelephone, commercial communications with ships at sea and, by radiotelephone, message communication with small vessels. Western Australian coastal radio stations are located at Perth, Broome, Esperance and Geraldton.

The licensing of civil radiocommunication stations and the transmission of radio messages within Australia are the responsibility of the Postmaster-General's Department. The Royal Flying Doctor Service of Australia, to which reference is made in Part 3 of Chapter V, provides general telegraph facilities in remote areas through its extensive radio network.

At 30 June 1970 there were 132,438 civil radiocommunication stations authorised throughout Australia. They comprised 4,188 fixed stations, 10,715 land stations, 111,297 mobile stations and 6,238 amateur stations.

The numbers of each type of radiocommunication station authorised to operate in Western Australia at 30 June 1970 are given in the next table. The following definitions are relevant in considering the figures shown in the table. *Fixed Stations*—Stations established at fixed locations for communication with other stations similarly established. *Outposts*—Stations established in outback areas for communication with control stations such as those of the Royal Flying Doctor Service. *Land Stations*—Stations established at fixed locations for communication with mobile stations. *Coast Stations*—Land stations for communication with ocean-going vessels. *Mobile Stations*—Equipment installed in aircraft (aeronautical), motor vehicles (land mobile services), harbour vessels (harbour mobile services) and ocean-going vessels (ship), and mobile equipment of organisations such as the Royal Flying Doctor Service.

CIVIL RADIOCOMMUNICATION STATIONS AUTHORISED AT 30 JUNE 1970

Type of station	Number	Type of station	Number
TRANSMITTING AND RECEIVING—		TRANSMITTING AND RECEIVING— <i>contd</i>	
Fixed stations—		Mobile stations—	
Aeronautical .....	17	Aeronautical .....	510
Services with other countries .....	13	Land mobile services .....	10,659
Outpost .....	428	Harbour mobile services .....	209
Other .....	292	Outpost .....	541
Land stations—		Ship .....	1,269
Aeronautical .....	38	Amateur .....	495
Base stations—			
Land mobile services.....	1,114	TOTAL, TRANSMITTING AND	
Harbour mobile services .....	37	RECEIVING .....	16,042
Coast .....	50	RECEIVING ONLY (fixed) .....	57
Special experimental .....	70	GRAND TOTAL .....	16,099

### BROADCASTING AND TELEVISION

Broadcasting and television services throughout Australia are controlled by the Australian Broadcasting Control Board under the Ministerial direction of the Postmaster-General. The Board is established by a provision of the *Broadcasting and Television Act 1942-1969*, which places under its general control the National Broadcasting Service, the National Television Service, the Commercial Broadcasting Service and the Commercial Television Service. The Act prescribes the fees payable for broadcast listeners' licences and television viewers' licences, while the fees to be charged for licences to operate commercial broadcasting and television stations are provided for in the *Broadcasting Stations Licence Fees Act 1964-1966* and the *Television Stations Licence Fees Act 1964-1966*.

The principal functions of the Australian Broadcasting Control Board, which consists of three full-time and two part-time members, are to ensure that services by broadcasting stations and television stations are in accordance with approved plans, that stations are

operated in accordance with appropriate technical standards, and that adequate and comprehensive programmes are provided. Subject to the approval of the Minister and of the Treasurer, the Board may give financial and other assistance to commercial broadcasting stations for the purpose of ensuring that programmes of adequate extent, standard and variety are provided in the areas which they serve. The Board is required to hold public inquiries into applications for licences for commercial broadcasting and television stations in areas for which the Minister proposes to grant licences. It is also the responsibility of the Board to determine, subject to any direction of the Minister, the situation, operating power and operating frequencies of broadcasting and television stations.

The Australian Broadcasting Commission, which is constituted under the *Broadcasting and Television Act 1942-1969*, controls the activities of, and provides programmes for, the National Broadcasting Service and the National Television Service which use transmitters operated by the Postmaster-General's Department. The operations of the Commission are financed by appropriations made by the Commonwealth Parliament.

The income of licensees of commercial broadcasting and television stations is derived from advertisements and other forms of publicity.

Commercial broadcasting stations are operated under licences granted and renewed by the Postmaster-General after taking into consideration any recommendations which have been made by the Broadcasting Control Board. The initial period of a licence is five years and renewals are granted for a period of one year.

Commercial television stations are also operated under licences granted and renewed by the Postmaster-General. The initial grant of a licence is for a period of five years and thereafter the licence is renewable annually.

### Broadcasting and Television Stations

In 1923, the first radio broadcasting station commenced operations in Australia and, in the following year, station 6WF (Westralian Farmers) opened in Perth.

Television commenced in Australia on 16 September 1956 when station TCN, Sydney began regular transmission. By 30 June 1970 the number of stations in operation had increased to a total of eighty-six, comprising forty-one national stations and forty-five commercial stations.

BROADCASTING STATIONS AT 30 JUNE 1970

NATIONAL STATIONS					COMMERCIAL STATIONS				
Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (a)	Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (a)
Medium frequency—					Perth ....	6IX	1,080	2,000	168
Perth ....	6WF	720	50,000	126	" ....	6KY	1,210	2,000	168
" ....	6WN	810	10,000	125½	" ....	6PM	1,000	2,000	168
Albany ....	6AL	650	400	126	" ....	6PR	880	2,000	168
Broome ....	6BE	670	50	126	Albany ....	6VA	780	2,000	123
Busselton ....	6BS	680	4,000	126	Bridgetown ....	6BY	900	2,000	113
Carnarvon ....	6CA	850	200	126	Bunbury ....	6TZ	960	2,000	124½
Dalwallinu ....	6DL	530	10,000	126	Collie ....	6CT	1,130	2,000	124½
Derby ....	6DB	870	2,000	126	Geraldton ....	6GE	1,010	2,000	121
Esperance ....	6ED	840	1,000	126	Kalgoorlie ....	6KG	980	2,000	113½
Kalgoorlie ....	6GF	660	2,000	126	Katanning ....	6WB	1,070	2,000	116
Geraldton ....	6GN	830	2,000	126	Merredin ....	6MD	1,100	2,000	115½
Northam ....	6NM	600	200	126	Narrogin ....	6NA	920	2,000	119½
Port Hedland ....	6PH	600	2,000	126	Northam ....	6AM	860	2,000	120
Wagin ....	6WA	560	50,000	126					
High frequency—									
Perth ....	VLW	(b)	(b)	126					

(a) To the nearest quarter hour. (b) The station operates two transmitters, of 10,000 and 50,000 watts. Frequencies are varied as required to obtain optimum results.

## TELEVISION STATIONS AT 30 JUNE 1970

Call sign and channel	Area served	Location of transmitter	Authorised frequencies (mHz)	Polarisation and authorised power (kW e.r.p.) (a)	Hours of service per week (b)	Date of commencement of operations (c)
NATIONAL STATIONS						
ABW-2	Perth ....	Bickley ....	Vision .... 63-70 Sound .... 64.25 ..... 69.75	Horizontal .... Vision 100 Sound 20	80	7 May 1960
ABAW-2	Southern Agricultural	Mount Barker	Vision .... 63-70 Sound .... 64.24 ..... 69.74	Vertical .... Vision 100 Sound 20	80	6 June 1966
ABCW-4	Central Agricultural...	Mawson Trig...	Vision .... 94-101 Sound .... 95.26 ..... 100.76	Horizontal .... Vision 100 Sound 20	80	28 March 1966
ABGW-6	Geraldton ....	Geraldton ....	Vision .... 174-181 Sound .... 175.25 ..... 180.75	Horizontal .... Vision 10 Sound 2	80	8 December 1969
ABKW-6	Kalgoorlie ....	Kalgoorlie ....	Vision .... 174-181 Sound .... 175.25 ..... 180.75	Horizontal .... Vision 4 Sound 0.8	80	27 January 1970
ABSW-5	Bunbury ....	Mount Lennard	Vision .... 101-108 Sound .... 102.25 ..... 107.75	Horizontal .... Vision 100 Sound 20	80	10 May 1965
COMMERCIAL STATIONS						
STW-9	Perth ....	Bickley ....	Vision .... 195-202 Sound .... 196.25 ..... 201.75	Horizontal .... Vision 100 Sound 20	96	12 June 1965
TVW-7	Perth ....	Bickley ....	Vision .... 181-188 Sound .... 182.25 ..... 187.75	Horizontal .... Vision 100 Sound 20	96	16 October 1959
BTW-3	Bunbury ....	Mount Lennard	Vision .... 85-92 Sound .... 86.24 ..... 91.74	Horizontal .... Vision 50 Sound 10	37½	10 March 1967
GSW-9	Southern Agricultural	Mount Barker	Vision .... 195-202 Sound .... 196.24 ..... 201.74	Vertical .... Vision 50 Sound 10	37½	23 August 1968

(a) Effective radiated power.

(b) To nearest quarter hour.

(c) Date on which full-scale transmission began.

The first television station in Western Australia commenced full-scale transmission in Perth on 16 October 1959 and, at 30 June 1970, three metropolitan and seven country television stations were operating.

Television transmissions by means of either a translator station or a repeater station are provided to some areas of the State not served by the stations shown in the above table. Translator stations are low-powered stations which receive signals from a parent station or another translator station and re-transmit those signals on a different frequency channel. They mainly serve isolated areas where there is not satisfactory reception from high-powered stations. Repeater stations are stations of low operating power designed to transmit only programmes recorded on magnetic tape.

At 30 June 1970 one national translator station was in operation in Western Australia, at Kambalda, receiving signals from station ABKW-6 Kalgoorlie. Licences for six repeater stations to serve northern areas of the State were granted by the Postmaster-General on 7 May 1970 and at 31 December 1970 stations at Dampier, Karratha, Tom Price and Newman had commenced transmission. Further repeater stations are being established at Koolan Island and Cockatoo Island in Yampi Sound.

### Receiving Licences

Broadcast listeners', television viewers', and combined receiving licences are issued at post offices in accordance with the provisions of the *Broadcasting and Television Act* 1942-1969, which stipulates that, except as prescribed, a person shall not use, maintain



or have in his possession a broadcast or television receiver unless there is in force a licence which applies to that receiver. A broadcast listener's licence or a television viewer's licence, whichever is appropriate, authorises the operation of any broadcast receiver or any television receiver, which is in the possession of the holder of a licence, or of a member of his family, at the address specified in the licence and is ordinarily kept at that address; or is installed in a vehicle which is ordinarily in the possession of the holder, or a member of his family, and is ordinarily kept at that address when not in use. A person who has both broadcast and television receivers at the one address is required to take out a combined receiving licence, provision for which was introduced by legislation effective from 1 April 1965.

A licence may be granted free of charge to a blind person over sixteen years of age or to a person or authority conducting a school, and at a concession rate to certain classes of pensioners. Receivers provided for the use of inmates of an institution (including a hospital) are covered by an appropriate licence held by the institution. Persons residing in Zone 2 may also be granted a broadcast listener's licence at a reduced rate. Zone 1 is the areas within 250 miles of specified broadcasting stations and Zone 2 is the remainder of Australia.

Each broadcast or television receiver let out on hire (except under a hire purchase agreement) must be covered by a hirer's licence held by the person or firm from whom the receiver is hired. The keeper of a lodging house (which includes a hotel, motel, boarding house or any other premises where lodging or sleeping accommodation is provided for reward) must take out a lodging house licence for each broadcast or television receiver for occupation by lodgers.

## RECEIVING LICENCES

Class of licence	Number in force at 30 June—				
	1966	1967	1968	1969	1970

## BROADCAST LISTENERS' LICENCES

Ordinary	43,724	34,702	36,857	33,933	28,961
Hirers'	12	12	12	55	56
Lodging house	94	43	196	724	1,447
Pensioners'	11,286	9,411	8,900	8,124	7,236
Total	55,116	44,168	45,965	42,836	37,700

## TELEVISION VIEWERS' LICENCES

Ordinary	10,771	12,051	11,700	11,525	10,923
Hirers'	15,687	15,531	16,149	22,230	23,871
Lodging house	296	342	519	778	1,804
Pensioners'	1,534	1,721	1,873	1,977	2,115
Total	28,288	29,645	30,241	36,510	38,713

## COMBINED RECEIVING LICENCES

Ordinary	97,965	111,398	115,867	125,131	134,558
Pensioners'	14,975	17,230	18,802	20,948	23,557
Blind persons'	451	396	722	718	864
Schools'	392	379			
Total	113,783	129,403	135,391	146,797	158,979

Revenue in Western Australia from fees for all receiving licences amounted to \$2,124,246 in 1964-65, \$2,285,076 in 1965-66, \$2,570,450 in 1966-67, \$2,665,963 in 1967-68, \$3,127,068 in 1968-69, and \$3,483,474 in 1969-70.

The annual fee payable at 30 June 1970 for each class of licence is shown in the following table.

**BROADCAST LISTENERS' AND TELEVISION VIEWERS' LICENCES  
ANNUAL FEES: 30 JUNE 1970**

Class of licence	Ordinary rate	Pensioner rate
	\$	\$
Broadcast listener's licence and hirer's licence for a broadcast receiver—		
Zone 1 ....	6.50	1.00
Zone 2 ....	3.30	0.70
Lodging house licence for a broadcast receiver—		
Zone 1 ....	6.50	....
Zone 2 ....	3.30	....
Television viewer's licence and hirer's licence for a television receiver ....	14.00	3.00
Lodging house licence for a television receiver ....	14.00	....
Combined receiving licence ....	20.00	4.00

### Analysis of Programmes

The particulars shown in the following tables have been taken from the Report of the Australian Broadcasting Control Board for the year ended 30 June 1970.

**Broadcasting.** The analysis of broadcasting programmes for Australia as a whole, as shown in the following table, is based on the combined figures from two surveys conducted by the Board in November 1969 and May 1970. In each case programmes of stations in State capital cities were monitored on a sampling basis for one minute in each ten minutes of transmission between 6.00 a.m. and 10.30 p.m. for a full week.

**BROADCASTING STATIONS—ANALYSIS OF PROGRAMMES  
METROPOLITAN STATIONS: AUSTRALIA  
(Per cent)**

Programme category	National (a)	Commercial	Total
Entertainment—			
Light and popular music ....	30.7	51.2	44.7
The arts (b) ....	22.6	0.1	7.2
Variety ....	1.8	1.5	1.6
Drama ....	3.9	0.6	1.6
Other ....	6.3	7.4	7.1
Total ....	65.3	60.8	62.2
Information and services—			
News ....	10.8	9.9	10.2
Sport ....	3.4	6.2	5.3
Information (c) ....	6.5	1.4	3.0
Religious ....	2.5	2.0	2.2
Social and political ....	6.1	3.0	4.0
Family (d) ....	0.4	1.8	1.3
Educational (e) ....	2.5	(f)	0.8
Children's ....	2.5	0.1	0.9
Total ....	34.7	24.4	27.7
Advertisements ....	....	14.8	10.1
GRAND TOTAL ....	100.0	100.0	100.0

(a) Comprises 2 representative national stations. (b) Serious music and opera; readings of prose and poetry; literary and art criticism. (c) Includes such topics as aspects of science; other countries and peoples; agriculture and other industries. (d) Includes programmes dealing with cooking; house and garden; hobbies; care of pets; health and physical fitness. (e) Programmes designed as an aid to formal teaching; kindergarten sessions. (f) Less than 0.05 per cent.

**Television.** The analysis of television programmes, as shown in the following table, is based on a 17 per cent sample of commercial and national programmes televised during the twelve-month period ended 5 April 1970. Details of commercial television programmes are derived from data supplied regularly by each station to the Board and details of national television programmes are obtained from information supplied by the Australian Broadcasting Commission. For the purpose of the table the national programmes analysed are those of ABV-2 Melbourne as they are considered to be reasonably representative of programmes of the national television service.

## TELEVISION STATIONS—ANALYSIS OF PROGRAMMES: AUSTRALIA

(Per cent)

Programme category	Metropolitan stations			Country stations (a)
	Commercial (b)	National	All stations	Commercial (b)
Drama—				
Serious .....	(c)	0.2	0.1	(c)
Adventure .....	11.0	8.8	10.5	13.2
Crime and suspense .....	9.1	3.2	7.7	9.1
Domestic and comedy .....	13.8	10.4	13.0	16.2
Western .....	4.7	1.8	4.0	7.5
Miscellaneous .....	10.7	4.9	9.5	7.6
Total .....	49.3	29.3	44.8	53.6
Light entertainment—				
Cartoons .....	6.9	5.4	6.6	4.9
Light music .....	3.6	1.7	3.1	4.6
Personality programmes .....	9.0	0.5	7.0	7.3
Talent programmes .....	1.5	.....	1.2	2.4
Variety .....	3.8	3.2	3.7	4.0
Total .....	24.8	10.8	21.6	23.2
Sport .....	5.0	8.2	5.7	4.4
News .....	7.1	7.4	7.2	9.0
Children—				
Kindergarten .....	4.7	5.0	4.7	1.3
Other .....	2.5	4.8	3.0	1.7
Total .....	7.2	9.8	7.7	3.0
Family activities .....	2.4	1.8	2.2	2.0
Information .....	1.6	3.9	2.1	2.1
Current affairs .....	1.0	7.7	2.6	1.0
Political matter .....	0.1	(c)	0.1	0.2
Religious matter .....	1.1	2.2	1.3	1.5
The arts .....	(c)	2.1	0.5	(c)
Education—				
Formal .....	(c)	15.1	3.5	.....
Other .....	0.4	1.7	0.7	(c)
Total .....	0.4	16.8	4.2	(c)
GRAND TOTAL .....	100.0	100.0	100.0	100.0

(a) Due to the similarity of programmes for all national stations a separate analysis for country stations is not made.

(b) Excludes time occupied by advertisements. A survey in 1970 showed that, for Melbourne stations, advertisements occupied 15.0 per cent of the total time.

(c) Less than 0.05 per cent.

## CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

### Part 1—Industrial Conditions

#### INDUSTRIAL AUTHORITIES

##### **Commonwealth Authorities**

A Commonwealth Court of Conciliation and Arbitration was established under the provisions of the *Commonwealth Conciliation and Arbitration Act* 1904. By an amendment made to the Conciliation and Arbitration Act in 1956 the Commonwealth arbitration system was reorganised by the creation of two separate authorities to deal with matters formerly within the sole jurisdiction of the Court. The amendment had the effect of allocating to a Commonwealth Industrial Court the judicial functions, and to a Commonwealth Conciliation and Arbitration Commission the arbitral functions, previously carried out by the Commonwealth Court of Conciliation and Arbitration.

**Commonwealth Industrial Court.** The Commonwealth Industrial Court, as constituted at 31 December 1970, comprised a Chief Judge and six other Judges. The Act provides that, except in respect of certain specified matters, the jurisdiction of the Court shall be exercised by not less than two Judges. A single Judge may refer a question of law for the opinion of the Court constituted by not less than two Judges. Although, in general, decisions of the Court are final, an appeal may be made to the High Court of Australia, but only when the High Court grants leave to appeal.

**Commonwealth Conciliation and Arbitration Commission.** The Commonwealth Conciliation and Arbitration Commission, according to the provisions of the *Conciliation and Arbitration Act* 1904-1970, shall consist of a President, not less than two Deputy Presidents, a Senior Commissioner and not less than five Commissioners. The Act provides also for the appointment of Conciliators. At 31 December 1970 there were, in addition to the President and the Senior Commissioner, six Deputy Presidents, twelve Commissioners and two Conciliators. Generally, the Commission's jurisdiction is limited to the prevention or settlement, by conciliation or arbitration, of industrial disputes which extend beyond the limits of any one State, but the Commission is authorised to conciliate or arbitrate in respect of any dispute or industrial matter associated with Commonwealth Government undertakings or projects. The power to make awards or certify agreements concerning standard hours, basic wages and long service leave is reserved to the Commission in Presidential Session, which is constituted by not less than three presidential members nominated by the President. The Principal Registry of the Commission is in Melbourne, Victoria, and there is a Deputy Industrial Registrar in each State.

##### **Western Australian Authorities**

A Court of Arbitration was established in Western Australia in 1901 under the provisions of the *Industrial Conciliation and Arbitration Act, 1900*. The Court comprised a President, a representative of associations of employers and a representative of associations of workers. The Court of Arbitration was replaced, with effect from 1 February 1964, by the Western Australian Industrial Appeal Court and The Western Australian Industrial Commission, authorities constituted in terms of the *Industrial Arbitration Act, 1912-1968*.

**Western Australian Industrial Appeal Court.** The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain

of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction.

**The Western Australian Industrial Commission.** The Western Australian Industrial Commission consists of a Chief Industrial Commissioner and three other Commissioners. The Act provides that a Commissioner sitting or acting alone constitutes the Commission and may exercise all the powers and jurisdiction of the Commission.

The Commission is empowered to inquire into any industrial matter or industrial dispute in any industry and to make orders or awards fixing the prices for work done by and the rates of wages payable to workers; fixing the number of hours and the times to be worked in order to entitle those workers to the wages so fixed; limiting the hours of piece workers; fixing the rates for overtime, work on holidays, shift work, week-end work and other special work, including allowances as compensation for overtime; determining any industrial matter; and declaring what deduction may be made from the prices or wages of workers for board or residence or board and residence provided for workers and for any customary provisions or payments in kind conceded to such workers.

The Commission in Court Session is constituted by not less than three Commissioners sitting or acting together. Appeals from decisions of a single Commissioner are heard and determined by the Commission in Court Session. Such appeals are restricted to the evidence and matters raised in the proceedings before the single Commissioner.

**Western Australian Coal Industry Tribunal.** The Western Australian Coal Industry Tribunal, as constituted under the *Mining Act, 1904-1970*, consists of five members appointed by the Governor. One member is chairman of the Tribunal, and there are two members representing employees, and two representing employers. The Tribunal has power to consider and determine industrial disputes, not extending beyond the limits of the State, and other matters relating to the coal-mining industry.

## EMPLOYER ORGANISATIONS

The first employers' organisation in Western Australia was the West Australian Chamber of Commerce which was founded in 1853 and was replaced by the Fremantle Chamber of Commerce in 1873. The Perth Chamber of Commerce (Incorporated) was founded in 1890. Other Chambers of Commerce operate in various parts of the State.

The West Australian Chamber of Manufactures (Incorporated) commenced in 1890, but disbanded and was founded in its present form in 1899.

The Western Australian Employers' Federation (Incorporated) was formed in 1913 to handle labour relations for all private industry throughout the State. It is the major employers' organisation handling labour relations issues which are no longer dealt with by the Chambers of Commerce or the Chamber of Manufactures. A federation of 62 affiliated Associations, comprising more than 20,000 employers, the Employers' Federation had also more than 5,400 individual members at 31 August 1970.

Its activities are controlled by a Council which contains a representative of each member Association and representatives of several major industries where no Association exists. The subscribing members elect a Finance Board to control the Federation's property and finances.

The Federation represents employers in all aspects of the negotiation of industrial awards and agreements, the settlement of industrial disputes, including arbitration and in relationships directly with the trade unions. It is affiliated with the Australian Council of Employers' Federations and through it has affiliations with the Organisation of Employers' Federations and Employers in Developing Countries and with the International Organisation of Employers.

## EMPLOYEE ORGANISATIONS

The trade unions in Western Australia cover all forms of occupations from the unskilled worker to the professional man. The great majority of union organisations are national in character with State branches registered with both the Federal and State Industrial Tribunals.

Major organisations include the Trades and Labor Council of Western Australia, the State branches of the Australian Council of Salaried and Professional Associations, the Australian Public Service Federation, and the Council of Commonwealth Public Service Organisations. These four groups cover most of the wage and salary earners employed in the private and governmental sectors of industry and commerce.

The Trades and Labor Council of Western Australia, which is the State branch of the Australian Council of Trade Unions (A.C.T.U.), has provincial councils at Albany, Geraldton and Kalgoorlie. At 31 August 1970 it had eighty-six State resident unions affiliated to it with a membership of approximately 90,000.

The Trades and Labor Council, representing the largest group of wage and salary earners, frequently acts on behalf of employees in matters before the Western Australian Industrial Authorities such as wages, hours, holidays, long service leave, and other associated matters of a standard or uniform nature.

The following table gives particulars of the number of trade unions in Western Australia and the number of members at the end of December of the years 1965 to 1969. The table also shows the estimated proportion of trade union members to total wage and salary earners in employment. As estimates of numbers of wage and salary earners in employment do not include employees engaged in agriculture or in private domestic service (see letterpress *Estimates of Employment* on page 510), the percentages have been calculated on figures obtained by adding to the estimates for December in each year the number of employees in agriculture and private domestic service recorded at the 1966 Population Census.

TRADE UNIONS—NUMBER AND MEMBERSHIP

Date	Number of unions	Number of members ('000)			Proportion of total wage and salary earners (a) (per cent)		
		Males	Females	Persons	Males	Females	Persons
End of December—							
1965	155	110.6	28.6	139.2	(b)	(b)	(b)
1966	157	114.7	31.8	146.6	59	38	53
1967	155	117.4	34.9	152.3	58	39	52
1968	157	123.1	37.8	160.9	57	39	52
1969	153	122.8	39.3	162.2	55	37	49

(a) Approximate; see letterpress immediately preceding table. In comparing the percentages shown in this table with those previously published allowance should be made for the fact that the present percentages are based on a new series of employment estimates as from June 1966 (see pages 510-12). The change is more significant for female employees as the new employment estimates include a considerable number of part-time employees who had previously been excluded. (b) Figures not available on the same basis as those for 1966 and later; see note (a).

The following table shows the numbers and membership of trade unions in Western Australia in broad industry groups. The table does not give a precise classification of trade union members according to industry, because in cases where the members of a union are employed in a number of industries they have been classified to the predominant industry for the union concerned.

Further information on trade unions in Australia, the Australian Council of Trade Unions, and the International Labour Organisation (I.L.O.) is given in the bulletin *Labour Report* issued annually by the Commonwealth Statistician, Canberra.

## TRADE UNIONS—NUMBER AND MEMBERSHIP: INDUSTRY GROUPS

Date	Manufac- turing	Building and construc- tion	Trans- port	Public authority n.e.i., etc. (a)	Other (b)	All groups
NUMBER OF UNIONS						
End of December—						
1965 ....	35	7	20	45	48	155
1966 ....	36	7	20	44	50	157
1967 ....	34	8	20	43	50	155
1968 ....	33	7	20	46	51	157
1969 ....	32	6	20	44	51	153
NUMBER OF MEMBERS ('000)						
End of December—						
1965 ....	31.9	11.4	19.2	30.1	46.7	139.2
1966 ....	33.5	11.5	19.1	31.9	50.6	146.6
1967 ....	33.5	13.9	19.3	33.1	52.5	152.3
1968 ....	34.3	17.9	20.0	35.0	53.9	160.9
1969 ....	37.8	12.8	19.6	36.8	55.2	162.2

(a) Includes Communication and municipal, etc. (b) Includes Agriculture, etc.; Mining and quarrying; Banking, insurance and clerical; Wholesale and retail trade; Amusement, hotels, personal service, etc.; and Community and business services.

## APPRENTICESHIP

The first registration of an apprentice in Western Australia was made on 25 May 1903 to the trade of book binding. At 31 December 1969 the total number of apprentices registered in this State was 10,878 in a wide variety of trades as given in the table on page 484.

Apprenticeships in this State are provided for and are subject to awards of The Western Australian Industrial Commission and registered industrial agreements. The Western Australian Industrial Commission functions by authority of the *Industrial Arbitration Act, 1912-1968*.

By definition, an apprentice is a person of either sex and of any age (other than the minimum age for which compulsory school attendance is required) who is apprenticed to learn or to be taught any industry, trade, craft or calling to which the Apprenticeship Regulations of the Commission apply. The Commission controls all industrial aspects of apprenticeship while the Technical Education Division of the Education Department provides the technical training as prescribed by the various awards of the Commission and by industrial agreements.

The Western Australian Apprenticeship Advisory Council, which comprises two representatives each from employers, employees and the State Government, and the Industrial Registrar as Chairman, advises the Minister for Labour, the Minister for Education and the Commission on matters of policy in respect of apprenticeship.

The Council assigns to Apprenticeship Advisory Boards such matters of an advisory nature relating to its trade or group of trades as considered necessary. Recommendations made to the Council from a Board may, after consideration and approval by the Council, be submitted to the Commission or Director-General of Education with a view to their implementation. The Boards consist of representatives from employers and employees, together with a representative from both the Department of Labour and Technical Education Division of the Education Department. The Administrative Officer of the Council is Chairman of all Apprenticeship Advisory Boards, thereby establishing a permanent liaison between the Boards and the Council.

A major achievement has been the general acceptance by most trades and by the consent of all parties involved in apprenticeship agreements of the Council's policy of shortened terms on grounds of educational achievement and vocational aptitude. The only major industry currently not participating in this policy is the printing trade.

Technical school attendance is compulsory when the Technical Education Division has suitable classes available in schools within a twelve-mile radius of the apprentice's home. Block release training was commenced in 1969 in the carpentry and joinery trade and the painting trade; in other cases day release training is prescribed. In the building trade compulsory attendance for intensive training is prescribed for country apprentices and correspondence lessons are available in most other trades.

Federal awards are of much less significance than State awards in apprenticeship matters in Western Australia. The total numbers of apprentices employed in this State at 31 December 1970 under the provisions of the *Commonwealth Conciliation and Arbitration Act* 1904-1970 and the *Public Service Act* 1922-1968 were 231 and 71, respectively. Section 52 of the *Commonwealth Conciliation and Arbitration Act* enables the Commonwealth Conciliation and Arbitration Commission to issue awards covering the rates of pay and conditions of employment of apprentices. In practice, however, the Commonwealth tends to delegate or refer the authority in such matters to the State.

As a result, the Industrial Registrar of The Western Australian Industrial Commission registers agreements involving apprentices and, on the completion of the term of apprenticeship, issues a Final Certificate, provided the apprentice has met the statutory requirements of the State in respect of examinations conducted by The Western Australian Industrial Commission and the Technical Education Division of the Education Department.

#### APPRENTICESHIP—NUMBER OF EFFECTIVE REGISTRATIONS

Trade	At 31 December—			Trade	At 31 December—		
	1967	1968	1969		1967	1968	1969
State awards—				State awards— <i>continued</i>			
Baking ....	74	84	73	Optical ....	9	11	13
Bootmaking ....	5	6	4	Pastry cooking ....	46	40	34
Building—				Printing—			
Carpentry and joinery ....	866	934	1,009	Composing ....	106	105	119
Bricklaying ....	98	113	135	Letterpress machining ....	27	29	31
Painting and signwriting ....	330	336	349	Other ....	74	81	88
Plastering ....	82	96	102	Saddlery and leather working ....	5	4	3
Plumbing ....	432	474	531	Scientific instrument making....	37	51	55
Other ....	5	8	7	Sheetmetal working ....	241	249	264
Butchering and smallgoods ....	404	437	494	Timber machining ....	59	62	53
Dental technician ....	17	29	33	Vehicle building—			
Electrical—				Bodymaking ....	136	136	134
Auto-electrical fitting ....	96	99	101	Panel beating ....	339	360	389
Electrical fitting ....	497	532	573	Spray painting ....	172	194	195
Electrical installing ....	434	510	573	Trimming ....	25	20	24
Radio and television servicing	67	83	82				
Furniture—				Total, State awards ....	9,290	10,024	10,546
Cabinetmaking ....	241	288	321				
Upholstery ....	35	38	42	Commonwealth awards—			
Woodmachining ....	63	69	78	Aircraft engineering ....	62	77	51
Other ....	58	64	50	Bootmaking ....	37	27	22
Glazing ....	39	46	46	Metal trades ....	4	2	13
Hairdressing—				Printing—			
Men's ....	82	90	96	Composing ....	63	63	59
Ladies' ....	865	959	1,044	Letterpress machining ....	70	72	72
Jewellery and watchmaking ....	25	25	28	Other ....	20	20	26
Metal trades—				Shipwrighting ....	32	38	37
Boilermaking ....	496	542	575				
Fitting and turning ....	485	534	537	Total, Commonwealth awards ....	288	299	280
Fitting ....	339	274	264				
Turning ....	90	93	75	Commonwealth Government Departments ....	56	64	52
Motor mechanic ....	1,262	1,362	1,401				
Moulding ....	74	59	50	GRAND TOTAL ....	9,634	10,387	10,878
Refrigeration fitting ....	78	87	106				
Welding ....	187	183	173				
Other ....	188	228	192				



In the previous table, the total number of apprentices registered in this State at 31 December is given for each of the years 1967 to 1969.

The next table shows the number of new registrations made to various trades during each of the three years.

#### APPRENTICESHIP—REGISTRATIONS TO VARIOUS TRADES

Trade	1967	1968	1969	Trade	1967	1968	1969
State awards—				State awards— <i>continued</i>			
Baking ....	21	27	20	Optical ....	2	4	4
Bootmaking ....	3	3	1	Pastry cooking ....	13	10	10
Building—				Printing—			
Carpentry and joinery ....	244	294	280	Composing ....	38	29	41
Bricklaying ....	23	39	48	Letterpress machining ....	7	17	8
Painting and signwriting ....	55	101	131	Other ....	26	52	22
Plastering ....	32	34	34	Saddlery and leather working	1	2	....
Plumbing ....	116	142	163	Scientific instrument making ....	9	18	16
Other ....	1	3	1	Sheetmetal working ....	39	59	74
Butchering and smallgoods ....	98	140	153	Timber machining ....	5	15	9
Dental technician ....	7	13	10	Vehicle building—			
Electrical—				Bodymaking ....	42	35	34
Auto-electrical fitting ....	23	24	23	Panel beating ....	76	89	113
Electrical fitting ....	147	153	158	Spray painting ....	48	51	53
Electrical installing ....	137	155	195	Trimming ....	10	4	9
Radio and television servicing	25	21	23	Total, State awards ....	2,488	2,970	3,064
Furniture—							
Cabinetmaking ....	65	105	112	Commonwealth awards—			
Upholstery ....	12	13	15	Aircraft engineering ....	19	32	6
Woodmachining ....	18	20	25	Bootmaking ....	12	8	6
Other ....	15	11	11	Metal trades ....	4	1	11
Glazing ....	10	30	11	Printing—			
Hairdressing—				Composing ....	8	17	8
Men's ....	25	29	34	Letterpress machining ....	18	19	22
Ladies' ....	270	270	323	Other ....	10	12	10
Jewellery and watchmaking ....	5	7	8	Shipwrighting ....	7	13	10
Metal trades—				Total, Commonwealth awards ....	78	102	73
Boilermaking ....	124	158	147	Commonwealth Government Departments ....	19	19	22
Fitting and turning ....	123	150	146	GRAND TOTAL ....	2,585	3,091	3,159
Fitting ....	73	77	64				
Turning ....	25	26	18				
Motor mechanic ....	336	376	368				
Moulding ....	18	11	15				
Refrigeration fitting ....	22	35	40				
Welding ....	50	46	45				
Other ....	49	72	49				

#### INCIDENCE OF INDUSTRIAL AWARDS

The table below indicates the approximate proportions of Western Australian employees covered by awards, determinations and registered industrial agreements under Commonwealth and State jurisdictions. The proportions not so covered (including those working under unregistered industrial agreements) are also shown. The figures summarise part of the data obtained from surveys of the Australian wage structure in April 1954, May 1963 and May 1968.

The estimates shown in the table were derived from returns collected from:

- (i) a stratified random sample of most private employers subject to Pay-roll Tax;
- (ii) all public hospitals and marketing boards;
- (iii) all Commonwealth and State government departments and semi-government authorities; and
- (iv) a stratified random sample of local government bodies.

Because of coverage difficulties, certain employees were excluded from the surveys. For further information relating to the survey of May 1968 and for statistics in greater detail, the reader is referred to the mimeographed publication *Survey of the Incidence of Industrial Awards, Determinations and Collective Agreements* issued by the Commonwealth Statistician, Canberra.

The term 'awards, etc.' in the following table means awards or determinations of, or agreements registered with, Commonwealth or State industrial authorities.

## INCIDENCE OF AWARDS (a)

Date	Males				Females			
	Employees represented in estimates	Employees affected by awards, etc.		Other employees	Employees represented in estimates	Employees affected by awards, etc.		Other employees
		Commonwealth awards, etc.	State awards, etc.			Commonwealth awards, etc.	State awards, etc.	
	'000	per cent	per cent	per cent	'000	per cent	per cent	per cent
1954—April	124	12.5	77.1	10.4	35	18.7	71.8	9.5
1963—May	136	13.3	76.5	10.2	42	14.8	74.4	10.8
1968—May	166	16.9	70.7	12.4	60	15.7	76.1	8.2

(a) Awards or determinations of, or agreements registered with, Commonwealth or State industrial authorities.

## INDUSTRIAL DISPUTES

Statistics of industrial disputes are compiled by the Commonwealth Statistician from data obtained from the following sources: direct collections from employers and trade unions concerning individual disputes; reports from government departments and authorities; reports of State and Commonwealth industrial authorities; and information contained in trade journals, employer and trade union publications, and newspaper reports.

## INDUSTRIAL DISPUTES (a)

Year				Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
					Directly	Indirectly (b)	Total		
					'000	'000	'000	'000	\$'000
1965	....	....	....	33	12.6	....	12.6	10.0	100.8
1966	....	....	....	25	2.9	(c)	2.9	6.2	64.5
1967	....	....	....	26	5.0	(c)	5.1	6.0	62.6
1968	....	....	....	70	18.3	0.4	18.7	21.8	281.8
1969	....	....	....	104	57.0	2.1	59.1	101.4	1,284.2

(a) Excludes disputes involving cessation of work of less than 10 man-days. (b) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (c) Less than 50.

## INDUSTRIAL DISPUTES (a)—INDUSTRY GROUPS: 1969

Industry group	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (b)	Total		
		'000	'000	'000	'000	\$'000
Agriculture, grazing, etc.	....	....	....	....	....	....
Coal mining	....	0.6	....	0.6	0.6	6.1
Other mining and quarrying	15	9.6	....	9.6	34.4	523.8
Manufacturing—						
Engineering, metals, vehicles, etc.	9	3.6	(c)	3.7	6.6	82.0
Textiles, clothing and footwear	....	0.1	....	0.1	0.1	1.0
Food, drink and tobacco	17	2.5	0.4	2.9	6.2	62.8
Sawmilling, furniture, etc.	....	0.2	....	0.2	0.2	2.2
Paper, printing, etc.	1	0.4	....	0.4	0.5	7.8
Other manufacturing	3	0.3	(c)	0.4	0.5	5.4
Building and construction	18	8.1	(c)	8.1	16.9	214.6
Railway services	3	11.0	1.6	12.6	15.7	164.8
Road and air transport	5	8.8	....	8.8	9.7	106.2
Shipping	5	0.4	....	0.4	0.9	9.9
Stevedoring	26	8.5	(c)	8.6	6.2	70.4
Amusement, hotels, personal service, etc.	....	0.2	....	0.2	0.2	1.7
Other industries (d)	2	2.7	....	2.7	2.6	25.6
Total	104	57.0	2.1	59.1	101.4	1,284.2

(a) Excludes disputes involving cessation of work of less than 10 man-days. (b) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (c) Less than 50. (d) Includes Communication; Finance and property; Wholesale and retail trade; Public authority (n.e.i.); and Community and business services.

In the two previous tables details of industrial disputes in Western Australia during the years 1965 to 1969 are given, together with an analysis, according to industry group, of disputes which were in progress in 1969. The statistics exclude disputes involving stoppages of work of less than ten man-days in the establishment where the stoppage occurred. Effects on other establishments resulting from lack of materials, disruption of transport services, power cuts, etc. are not measured by these statistics.

Particulars of all disputes in progress during the year are included in the annual figures, whether the dispute commenced in that year or was in progress at the beginning of the year. Consequently, details of 'the number of disputes' and 'workers involved' in disputes which commenced in any year, and were still in progress during the following year, are included in the figures for both years.

Particulars of some stoppages (e.g. those involving a large number of establishments) may be estimated and the statistics therefore should be regarded as giving a broad measure of the extent of stoppages of work (as defined).

## INDUSTRIAL DISPUTES (a) ACCORDING TO DURATION—1969

Duration (working days)	Mining	Manufacturing	Building and construction	Stevedoring	Other industries	All industries
NUMBER OF DISPUTES (a)						
1 day and less	1	10	3	21	6	41
2 days and more than 1 day	6	6	4	4	5	25
3 days and more than 2 days	2	4	2	1	...	9
Over 3 days and less than 5 days	4	7	3	...	1	15
5 days and less than 10 days	...	1	6	...	3	10
10 days and less than 20 days	2	1	...	...	...	3
20 days and less than 40 days	...	1	...	...	...	1
40 days and over	...	...	...	...	...	...
Total	15	30	18	26	15	104

## WORKERS INVOLVED (b) ('000)

1 day and less	4.9	5.0	5.0	6.9	10.5	32.3
2 days and more than 1 day	2.5	0.5	0.5	1.7	14.1	19.2
3 days and more than 2 days	0.1	0.7	0.3	(c)	...	1.0
Over 3 days and less than 5 days	1.2	1.2	1.5	...	(c)	3.9
5 days and less than 10 days	...	0.2	0.8	...	0.1	1.1
10 days and less than 20 days	1.6	(c)	...	...	...	1.6
20 days and less than 40 days	...	0.1	...	...	...	0.1
40 days and over	...	...	...	...	...	...
Total	10.2	7.6	8.1	8.6	24.7	59.1

## WORKING DAYS LOST ('000 MAN-DAYS)

1 day and less	4.9	4.8	5.0	3.1	10.4	28.3
2 days and more than 1 day	4.2	0.7	0.6	3.1	17.9	26.5
3 days and more than 2 days	0.2	1.7	0.8	(c)	...	2.7
Over 3 days and less than 5 days	4.6	4.8	6.0	...	0.1	15.5
5 days and less than 10 days	...	1.0	4.6	...	0.7	6.2
10 days and less than 20 days	21.1	0.1	...	...	...	21.2
20 days and less than 40 days	...	1.1	...	...	...	1.1
40 days and over	...	...	...	...	...	...
Total	35.0	14.1	16.9	6.2	29.2	101.4

## ESTIMATED LOSS IN WAGES (\$'000)

1 day and less	54.2	52.0	56.2	35.5	108.6	306.5
2 days and more than 1 day	70.0	6.7	10.6	34.8	189.2	311.3
3 days and more than 2 days	2.8	20.8	9.1	0.2	...	32.9
Over 3 days and less than 5 days	57.9	54.4	74.2	...	3.1	189.6
5 days and less than 10 days	...	13.3	64.5	...	7.3	85.1
10 days and less than 20 days	345.0	0.8	...	...	...	345.8
20 days and less than 40 days	...	13.0	...	...	...	13.0
40 days and over	...	...	...	...	...	...
Total	529.9	161.0	214.6	70.5	308.2	1,284.2

(a) Excludes disputes involving cessation of work of less than 10 man-days.

(b) Includes workers indirectly involved,

i.e. persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute.

(c) Less than 50.

## WAGES AND EARNINGS

**The Basic Wage**

**Commonwealth Basic Wage.** The *Western Australian Year Book*, No. 7—1968 and earlier issues contain an account of the development of the Commonwealth basic wage from its inception until it was abandoned in 1967. In a unanimous judgment given on 5 June 1967 the Commonwealth Conciliation and Arbitration Commission announced 'the elimination of basic wages and margins and the introduction of total wages'. An increase of \$1 per week was awarded to all adult employees and the judgment stated that 'total wages will be arrived at by adding an amount of \$1 per week to the weekly award wages of all adult males and females . . .' and further, that the Commission had 'on this occasion deliberately awarded the same increase to adult females and adult males'. The increase was declared to become operative from the beginning of the first pay-period commencing on or after 1 July 1967.

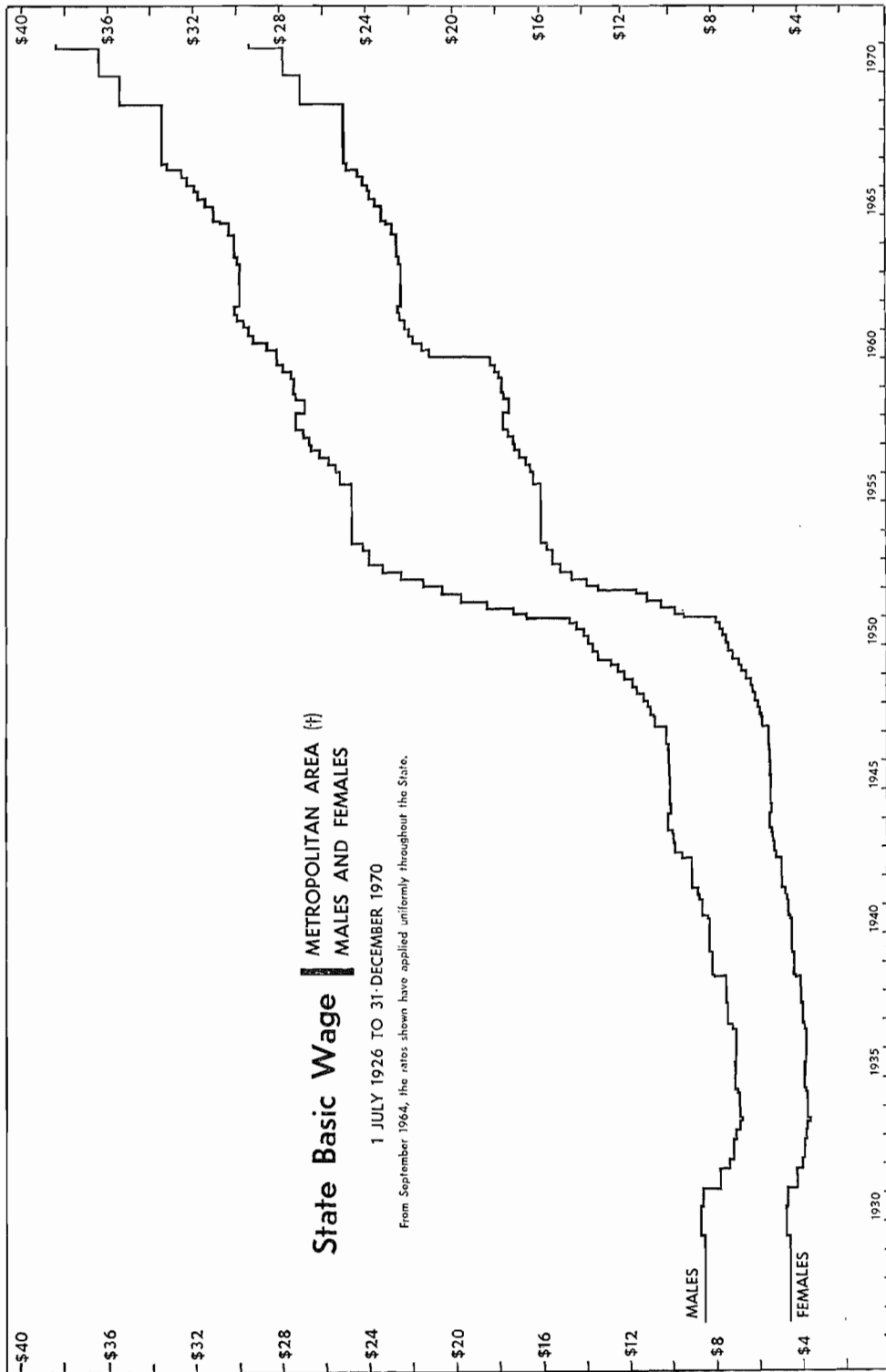
A table showing Commonwealth basic wage rates at 31 December of each year from 1923 to 1966 is given in the *Statistical Summary from 1829* appearing in the *Western Australian Year Book*, No. 9—1970 and earlier issues.

**State Basic Wage.** Reference is made in the *Western Australian Year Book*, No. 7—1968 and earlier issues to the work of the former Court of Arbitration in the field of wage determination from the declaration of the first State basic wage in 1926.

The Western Australian Industrial Commission came into operation on 1 February 1964, replacing the Court of Arbitration as the authority responsible for State basic wage determinations in Western Australia. The *Industrial Arbitration Act, 1912-1968* requires that such determinations shall be made by the Commission in Court Session. The Commission so constituted made its first adjustment to the basic wage on 27 April 1964, when it prescribed increased rates to apply on and from that date. As a result of this decision, the weekly rates payable to adult males became £15 4s. 2d. (\$30·42) in the Metropolitan Area, £15 2s. 7d. (\$30·26) in the South-West Land Division, and £14 16s. 8d. (\$29·67) in Goldfields Areas and other parts of the State. (For purposes of the basic wage, the 'Metropolitan Area' was the area comprised within a radius of fifteen miles from the General Post Office, Perth; the 'South-West Land Division' was the area so described in the Land Act, but excluding the 'Metropolitan Area'; and 'Goldfields Areas and other parts of the State' comprised the area outside the South-West Land Division. Reference to the South-West Land Division will be found on page 138.)

On 15 June 1964 the Trades and Labor Council of Western Australia, acting on behalf of registered unions, addressed to the Commission a request for an inquiry into the basic wage. A preliminary hearing was held on 3 July to consider questions of procedure, representation and related matters. The general inquiry began before the Commission in Court Session on 22 July and was completed on 14 August. Representatives of the unions and of the Western Australian Employers' Federation (Incorporated) made extensive submissions and the Crown Counsel, on behalf of the State Government, intervened in the public interest, as authorised under section 68 of the Industrial Arbitration Act. Judgment was given on 22 September. The Commission was unanimous in its conclusion that one basic wage should apply to the whole State, but was divided as to the amount of the wage. The majority view was that a weekly wage of £15 8s. (\$30·80) should be declared as appropriate to adult male workers, and an order was issued accordingly prescribing this amount for males and an amount of £11 11s. (\$23·10) for females, the rates to operate on and from 22 September 1964 and to apply uniformly throughout the State.

The *Industrial Arbitration Act Amendment Act, 1966*, which came into operation on 23 December 1966, provided that the rates which were current immediately prior to the date of commencement of the Act should remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations should be made in accordance with variations of that wage. (At 23 December 1966 the State basic wage for adult males was



\$33·50 per week and for adult females, \$25·13 per week. The corresponding Commonwealth basic wage rates for the six capital cities at the same date were \$32·80 and \$24·60.)

Reference is made in the preceding section *Commonwealth Basic Wage* to the decision given by the Commonwealth Conciliation and Arbitration Commission on 5 June 1967, when it announced the elimination of basic wages and margins from its awards, and the introduction of total wages to operate from the beginning of the first pay-period commencing on or after 1 July 1967. This decision provided also that total wages for adult males and adult females were to be increased by \$1 per week from the same date. Following this decision a number of unions in Western Australia applied to The Western Australian Industrial Commission seeking an increase of \$1 per week in margins for adult males and adult females, with proportionate increases for junior workers and apprentices. The Commission delivered its judgment on 27 June 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36·55 to \$37·55; 'that the wage rates for adult workers not in receipt of the "minimum wage" be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount'. These increases were declared to operate from the beginning of the first pay-period commencing on or after 1 July 1967.

A further increase of \$1·35 per week for adult males and adult females was granted by the Commission in October 1968 to operate from the beginning of the first pay-period commencing on or after 25 October 1968.

The *Industrial Arbitration Act Amendment Act, 1968*, operative from 22 November 1968, restores to The Western Australian Industrial Commission the power to declare a basic wage, which had been removed by the amending Act of 1966. The 1968 amendment provides that the Commission in Court Session may at any time and from time to time, by order, '(a) determine and declare a basic wage for male workers; (b) determine and declare a basic wage for female workers; and (c) vary any basic wage for the time being in force, and any such basic wage so determined and declared or so varied shall be for all purposes, the basic wage for male workers or female workers throughout the State'.

The Act defines the term 'basic wage' as 'that wage or that part of a wage which in the opinion of the Commission, is just and reasonable for a worker to whom it applies, without regard to the circumstances pertaining to the work upon which, or the industry in which, such worker is employed'. In determining a basic wage the Commission is required by the Act to take into consideration the amount that it considers sufficient to enable the average worker to whom that basic wage shall apply to live in reasonable comfort. Although the Commission must also consider the economic capacity of industry, it may not reduce the wage to a level below that required for the maintenance of this standard of 'reasonable comfort'.

The Act prescribed basic wage rates of \$35·45 per week for adult male workers and \$27·08 per week for adult female workers, to apply on and from the date of commencement of the Act (22 November 1968). These amounts comprise the sum of the basic weekly wage rates of \$33·50 for males and \$25·13 for females, operative from 24 October 1966 (before the Commission's power to determine basic wages was removed by the 1966 amendment to the Act), and the subsequent increases of 60 cents per week granted in June 1967 and \$1·35 per week in October 1968.

The Commission is required to review the basic wage, or any variation of the wage, not later than twelve months from the date on which the wage (or variation) came into operation. It is provided by the Act that any variation shall take effect 'only after the expiration of such twelve months, unless in the opinion of the Commission there are special reasons existing in the circumstances of any particular case and it is just and equitable to otherwise determine'.

On 21 November 1969, following the annual review required under the Act, the Commission increased the basic wage for adult males by \$1 per week and for adult

females by 80 cents per week, with effect from the beginning of the first pay-period commencing on or after 24 November 1969.

On 3 August 1970, The Western Australian Industrial Commission began hearing an application by the Trades and Labor Council of Western Australia for an increase in the basic wage to \$48.35 per week for adult males and \$37.00 per week for adult females. The Council's claim was later amended to seek a basic wage of \$61.61 for males and \$47.12 for females, representing increases of \$25.16 and \$19.24 on the rates then current. The hearing of submissions and replies was completed on 7 September and the Commission announced its decision on 19 October.

As a result of the decision the basic wage for adult males became \$38.45 per week and for adult females \$29.40 per week, the new rates to operate from 26 October 1970.

The Commission also announced its intention 'to prescribe in such awards and industrial agreements as it appears proper so to do, a minimum wage for adult males of \$49.00 per week', operative from 26 October 1970.

Further, the Commission stated its intention 'to invite applications to include in such awards and industrial agreements as it may appear proper and appropriate so to do, a provision which will ensure to each employee a minimum payment 10 per cent. in excess of the sum of the basic wage and margin prescribed for his particular class of work'.

The following table shows variations, from 22 September 1964, in the State basic wage rates payable to adult male and female workers employed under State industrial awards or registered agreements, or in accordance with the provisions of the Factories and Shops Act. A table showing rates applying at 31 December of each year from 1926 is given in the *Statistical Summary from 1829* following this Chapter.

STATE BASIC WAGE—ADULT WEEKLY RATES  
(\$)

Date of operation	Males	Females	Date of operation	Males	Females
1964—22 September .....	30.80	23.10	1966—25 January .....	32.38	24.28
26 October .....	31.12	23.34	2 May .....	32.65	24.49
1965—26 April .....	31.47	23.60	2 August .....	33.26	24.95
26 July .....	31.78	23.84	24 October (a) .....	33.50	25.13
16 November .....	31.96	23.97	1968—22 November (b) .....	35.45	27.08
			1969—24 November .....	36.45	27.88
			1970—26 October .....	38.45	29.40

(a) See letterpress on page 490.  
Act, 1968.

(b) Rates prescribed under the provisions of the *Industrial Arbitration Act Amendment*

### Equal Pay for Male and Female Workers

**State Awards.** The *Industrial Arbitration Act Amendment Act, 1968* requires The Western Australian Industrial Commission, on application, to insert in awards provision for equal pay for male and female workers performing work of the same or a like nature and of equal value. In terms of this amendment, it is provided that, if application for equal pay was made before 30 June 1970, the difference in male and female basic wages shall be removed not later than 1 January 1972.

**Commonwealth Awards.** Two benches of the Commonwealth Conciliation and Arbitration Commission sat jointly from 25 February to 22 May 1969 to take evidence and hear argument on trade union claims for equal pay between the sexes. Both benches reached a common conclusion and on 19 June 1969 published their decision and reasons for their decision. The Commission stated it was prepared to implement the principle of equal pay for equal work by introducing into Commonwealth awards and determinations the principles contained in State Acts on equal pay. It decided that no increases should be granted to adult females without an examination of the work done and that implementation of equal pay should be spread over a period so that, as from 1 January 1970, implementation would be the same as that under South Australian, Western Australian and Tasmanian Acts.

### Minimum Wage Rates

The basic wage, as the term implies, establishes a 'base' to which additions may be made to provide rates actually payable in certain industries and occupations and in particular areas. Minimum rates, incorporating these additional payments, may be prescribed by awards of The Western Australian Industrial Commission, or may be negotiated by industrial agreement. These agreements are registered with the Commission and are binding upon the parties. The additions made to the basic wage rate take the form of 'margins' and 'loadings'. Margins are amounts awarded to particular classifications of employees for features attaching to their work, such as skill, experience, arduousness and other like factors. Loadings are amounts awarded for various kinds of disabilities associated with the performance of work, or to meet particular circumstances. They include payments such as industry loadings and other general loadings prescribed in awards, determinations or agreements for the occupation concerned.

Awards of the Commonwealth Conciliation and Arbitration Commission take cognisance of particular features or circumstances such as those mentioned above but no longer contain identifiable components in the form of basic wage, margins, and loadings (see letterpress *Commonwealth Basic Wage* on page 488).

In its decision of 8 July 1966 in the Basic Wage, Margins and Total Wages Cases of 1966, the Commonwealth Conciliation and Arbitration Commission announced that it intended to grant relief to low-wage earners by inserting a provision in awards prescribing a minimum wage. The provisions inserted in the awards state that no adult male employee shall be paid at less than the prescribed minimum rates as ordinary rates of pay in respect of the ordinary hours of work prescribed in the award. The minimum weekly wage rates prescribed were the appropriate basic wages plus \$3.75 per week. As a result of this decision the minimum weekly wage as prescribed in Commonwealth awards for adult male workers in Perth became \$36.55, with effect from the beginning of the first pay-period commencing on or after 11 July 1966.

Reference is made on pages 490 and 491 to minimum wage rates prescribed under awards of The Western Australian Industrial Commission.

The following table shows variations in the minimum weekly wage rates applicable to adult males under Commonwealth and State awards.

MINIMUM WEEKLY WAGE RATES—ADULT MALES  
COMMONWEALTH AND STATE AWARDS  
(\$)

Commonwealth awards		State awards	
Perth		Western Australia	
Date of operation (a)	Amount	Date of operation	Amount
1966—11 July ....	36.55	1967— 5 April (a) ....	36.55
1967— 1 July ....	37.55	1 July (a) ....	37.55
1968—25 October ....	38.90	1968—25 October (a) ....	38.90
1969—19 December ....	42.40	1969—19 December (a) ....	42.40
1971— 1 January ....	46.40	1970—26 October ....	49.00

(a) Rates operative from beginning of first pay-period commencing on or after the date shown.

The statistics shown in the following table relate, in the main, to wages and hours prescribed in awards or determinations of the Commonwealth and State industrial authorities or in agreements registered with them.

The minimum wage rates and index numbers shown in the table embrace a representative range of occupations and are based on the occupation and industry structures in Australia in 1954. The weekly wage rates given in the table, and used in the compilation of the indexes, represent the lowest rates payable for a full week's work (excluding overtime), as prescribed in representative industrial awards, determinations and agreements. The hourly wage rates are obtained by relating the weekly wage rates and the weekly hours



of work prescribed in awards, etc. The rural industries are excluded from the table, because of coverage difficulties.

Because the indexes are designed to measure movements in prescribed minimum rates of 'wages' as distinct from 'salaries', those awards, determinations and agreements which relate solely or mainly to salary-earners are excluded.

The wage rates shown should not be regarded as actual current averages, but as indexes expressed in money terms, indicative of trends.

A more detailed description of the minimum wage rates index and more extensive tables are published in the Commonwealth Statistician's mimeographed monthly bulletin *Wage Rates and Earnings*.

A table showing minimum rates of wages payable in a selection of occupations in Western Australia at 30 June 1969 appears in *Statistics of Western Australia—Labour and Prices: 1969* (pages 5-7).

#### WEIGHTED AVERAGE MINIMUM WEEKLY AND HOURLY WAGE RATES WESTERN AUSTRALIA

Date	Weekly wage rates		Hourly wage rates		Index numbers (a)			
	Adult males	Adult females (b)	Adult males (c)	Adult females (b)	Weekly wage rates		Hourly wage rates	
					Males	Females (b)	Males (c)	Females (b)
End of June—	\$	\$	cents	cents				
1966 .....	42.06	29.45	105.59	74.02	148.9	147.9	149.2	*147.5
1967 .....	44.03	31.20	110.45	78.43	155.9	156.7	156.1	156.3
1968 .....	45.61	32.55	114.08	81.82	161.5	163.5	161.2	163.1
1969 .....	*48.53	*34.66	121.32	*87.12	171.8	*174.1	171.5	173.6
1970 (d) .....	51.07	37.14	127.53	93.35	180.8	186.5	180.2	186.1

(a) Base of series : weighted average weekly wage rate—Australia, 1954 = 100. (b) Excludes mining and quarrying and building and construction. (c) Excludes shipping and stevedoring. (d) Preliminary figures; subject to revision.  
\*Revised.

#### Average Weekly Earnings

Statistics of average weekly earnings are derived from information concerning employment and wages and salaries as recorded on Pay-roll Tax returns, from other direct collections, and from estimates of the unrecorded balance. The figures relate to civilians only.

Particulars of wages and salaries paid are not available separately for males and females from these sources. Average weekly earnings have therefore been calculated in terms of male units, i.e. total male employees plus 55 per cent of female employees. This proportion is derived from the estimated ratio of female to male earnings in Australia. As it was not possible to estimate the ratio of female to male earnings in the several States the same ratio has been used in each State. Because the actual ratio may vary between States precise comparisons between average earnings in different States cannot be made on the basis of the figures shown in the following table.

#### AVERAGE WEEKLY EARNINGS PER EMPLOYED MALE UNIT (a) AUSTRALIAN STATES (\$)

Year	N.S.W. (b)	Vic.	Qld	S.A. (c)	W.A.	Tas.	Aust.
1965-66 .....	58.60	59.20	52.50	53.80	54.10	53.80	57.00
1966-67 .....	62.40	63.00	55.60	56.90	58.30	57.40	60.70
1967-68 .....	66.00	66.80	58.80	60.40	62.50	61.00	64.30
1968-69 .....	71.60	71.20	62.60	64.30	67.20	*64.10	68.90
1969-70 .....	77.40	77.00	68.40	69.90	74.90	70.00	75.00

(a) Includes, in addition to wages at award rates, earnings of salaried employees, overtime earnings, over-award and bonus payments, and payments made in advance or retrospectively during the years specified. (b) Includes Australian Capital Territory. (c) Includes Northern Territory.  
\*Revised.

For the purpose of this table, the term 'earnings' includes, in addition to wages at award rates, earnings of salaried employees, overtime earnings, over-award and bonus payments, and payments made in advance or retrospectively during the years specified. It is important to bear in mind that the figures relate to the total wage and salary earner field and therefore comprise payments to all grades of employees from junior workers to persons at the highest levels of executive and administrative activity.

Quarterly figures corresponding to those shown in the table are published by the Commonwealth Statistician in the monthly bulletin *Wage Rates and Earnings* and in the *Monthly Review of Business Statistics*.

### SURVEY OF WEEKLY EARNINGS AND HOURS

Sample surveys in respect of most private employers subject to Pay-roll Tax (*i.e.* those paying more than \$400 per week in wages and salaries) have been conducted as at the last pay-period in October during recent years.

In addition to obtaining data for the calculation of average weekly earnings, average weekly hours paid for, and average hourly earnings, the surveys carried out in October 1966, 1967, 1968 and 1969 obtained information on overtime and ordinary-time earnings and hours, for full-time employees (other than managerial, etc. staff).

The results of the surveys are based on returns from stratified random samples of private employers subject to Pay-roll Tax. Employees in rural industry and in private domestic service are excluded because most employers in these industries are not subject to Pay-roll Tax. Also excluded from the surveys are employees of government and semi-government authorities, and employees of religious, benevolent and other similar organisations exempt from Pay-roll Tax.

Definitions of the terms used in the following tables may be found in the mimeographed publication *Survey of Weekly Earnings and Hours, October 1969*, published by the Commonwealth Statistician, Canberra. This publication also contains further information on the construction of the sample, and more detailed tables.

The two following tables refer to the results for Western Australia.

The October 1965 Survey of Weekly Earnings was a special-purpose survey on a different basis from the surveys compared in this section and consequently figures for 1965 have been omitted from the next table.

#### AVERAGE EARNINGS AND HOURS (a)—PRIVATE EMPLOYMENT ALL INDUSTRY GROUPS (b)

Particulars	October—				
	1964	1966	1967	1968	1969
Average weekly earnings <sup>(c)</sup> —	\$	\$	\$	\$	\$
Adult males .....	49.90	60.40	65.10	73.00	77.30
Junior males .....	21.40	27.10	28.80	31.20	34.30
Adult females .....	30.50	35.10	36.20	38.60	43.40
Junior females .....	17.40	21.10	22.70	23.90	27.30
Average weekly hours paid for (c)—	hrs	hrs	hrs	hrs	hrs
Adult males .....	42.2	43.5	44.2	45.8	45.5
Junior males .....	40.8	41.0	41.1	41.5	41.8
Adult females .....	39.7	39.3	39.6	39.5	39.9
Junior females .....	39.5	39.3	39.3	39.4	39.6
Average hourly earnings (c)—	\$	\$	\$	\$	\$
Adult males .....	1.18	1.39	1.47	1.59	1.70
Junior males .....	0.53	0.66	0.70	0.75	0.82
Adult females .....	0.77	0.89	0.91	0.98	1.09
Junior females .....	0.44	0.54	0.58	0.61	0.69

(a) Excludes managerial, professional and higher supervisory staff. Full-time employees only are included. (b) Excludes rural industry and private domestic service. (c) Last pay-period in October. See also letterpress immediately preceding table.

The following table analyses total earnings for Western Australia to show their over-time component in October 1968 and 1969.

AVERAGE WEEKLY OVERTIME AND ORDINARY-TIME EARNINGS (a)  
PRIVATE EMPLOYMENT (b)  
(\$)

Particulars	Average weekly overtime earnings (a)		Average weekly ordinary-time earnings (a)		Average weekly total earnings	
	October—		October—		October—	
	1968	1969	1968	1969	1968	1969
Adult males—						
Manufacturing—						
Founding, engineering, vehicles, etc. ....	15.20	18.90	59.00	57.90	74.30	76.80
Other ....	11.60	12.00	52.90	58.30	64.50	70.30
Total Manufacturing ....	13.10	15.00	55.40	58.10	68.40	73.10
Non-manufacturing ....	16.60	17.40	59.50	62.60	76.00	80.00
All industry groups (c) ....	15.20	16.40	57.80	60.80	73.00	77.30
Junior males—all industry groups (c) ....	2.90	3.40	28.30	30.90	31.20	34.30
Females—all industry groups (c)						
Adult ....	1.30	1.80	37.30	41.50	38.60	43.40
Junior ....	0.60	0.90	23.30	26.40	23.90	27.30

(a) Averages for all employees represented in the survey.  
Full-time employees only are included.

(b) Excludes managerial, professional and higher supervisory staff.  
(c) Excludes rural industry, and private domestic service.

## HOURS OF WORK AND LEAVE PROVISIONS

**Standard Hours of Work.** In the fixation of weekly wage rates most industrial tribunals prescribe the number of hours constituting a full week's work for the wages specified.

Following applications for the introduction of a working week of forty hours, in place of the existing general standard of forty-four hours, the Commonwealth Court of Conciliation and Arbitration began hearing evidence in October 1945. In its judgment given on 8 September 1947 the Court granted the reduction to forty hours from the beginning of the first pay-period commencing in January 1948. On 6 November 1947 the Western Australian Court of Arbitration approved that, on application, provision for a working week of forty hours could be incorporated in awards of the Court with effect from 1 January 1948.

The forty-hour week has operated in Australia generally from 1 January 1948 (in New South Wales from 1 July 1947). However, the number of hours constituting a full week's work (excluding overtime) differs between occupations and/or between States. The weighted average standard hours of work (excluding overtime) prescribed in awards, determinations and agreements for a full working week, in respect of adult male workers in all industry groups except Rural, and Shipping and stevedoring, at 30 September 1970 were: New South Wales, 39.86; Victoria, 39.97; Queensland, 39.94; South Australia, 39.96; Western Australia, 39.85; Tasmania, 39.95; Australia, 39.91. Corresponding figures for adult female workers at 30 September 1970 were: New South Wales, 39.53; Victoria, 39.81; Queensland, 39.70; South Australia, 39.77; Western Australia, 39.78; Tasmania, 39.63; Australia, 39.67.

**Annual Leave and Public Holidays.** On 18 April 1963 the Commonwealth Conciliation and Arbitration Commission gave a judgment which had the effect of granting a general increase from two weeks to three weeks in the period of paid annual leave for employees covered by Commonwealth awards.

Following a general inquiry concerning annual leave and public holidays, the Western Australian Court of Arbitration in June 1963 adopted three weeks as the new standard

for the normal period of annual leave in State awards, with four weeks for seven-day shift workers. Existing awards and agreements which already provided annual leave in excess of this standard were to be examined separately to ascertain whether special circumstances existed to justify leave greater than the normal standard.

In the inquiry the State Government sought a reduction in the number of public holidays and a review of other conditions where these were more favourable than the Court's standard. Private employers opposed any increase in annual leave but, alternatively, submitted that, if there was to be an increase, then the new standard should be two weeks and four days per annum or the number of public holidays in each year should be reduced by one. Both these submissions were rejected and the standard number of public holidays was retained at ten with the provision that, where an award provided for more than ten public holidays a year, that award, unless the union consented to a reduction to ten, would be excluded from the order amending the annual leave provisions until it was established that special circumstances justified the continuance of the greater number of holidays.

In November 1963 the Court refused an application by employers for the right to split the annual leave into two parts, since it decided to follow the decision of most other State tribunals and allow the additional leave in conformity with conditions similar to those prescribed by the Commonwealth Conciliation and Arbitration Commission. The right to split the leave would be allowed by the Court only in exceptional circumstances, unless all the parties concerned agreed to the inclusion of such a provision.

**Long Service Leave.** The *Long Service Leave Act, 1958-1964* (State) confers entitlement to long service leave with pay on employees for whom such leave is not otherwise provided. Entitlement accrues only in relation to continuous service with one employer, but continuity of service is not affected by the transfer of a business from one employer to another. Leave of thirteen weeks on ordinary pay is granted in respect of the first fifteen years of service. For each subsequent ten years the entitlement is eight and two-thirds weeks, with *pro rata* conditions applying in the case of death or termination of employment for any reason other than serious misconduct. An employee who has completed at least ten years' service but less than fifteen years is entitled to *pro rata* leave, on the basis of thirteen weeks for fifteen years, if his employment is terminated by death; by the employer for any reason other than serious misconduct; or by the employee on account of sickness, injury, or domestic or other pressing necessity. An employee forfeits his right to long service leave if he engages in alternative employment for reward during the period of leave.

## WORKERS' COMPENSATION

The *Workers' Compensation Act, 1912-1970* (State) provides compensation to workers in Western Australia for injuries suffered in the course of their employment, for death resulting from such injuries, and for disabilities due to specified industrial diseases associated with their employment. The provisions of the Act do not extend to employees of the Commonwealth Government, for whom compensation is provided by the *Commonwealth Employees' Compensation Act 1930-1970*.

Every employer, other than a self-insurer, is required to effect insurance with an approved insurer for the full amount of the liability to pay compensation under the Act to all workers in his employment.

The Act establishes a Workers' Compensation Board of three members, including a chairman, appointed by the Governor. The chairman must be a legal practitioner of not less than seven years' practice and standing. Of the remaining members, one is nominated by the Western Australian Employers' Federation (Incorporated), and one by the Trades and Labor Council of Western Australia. The Board has exclusive jurisdiction to inquire into, hear, and determine all questions and matters arising under the

Act, and its actions and decisions are final, except that where any question of law arises in any proceedings before the Board, it may state a case for the decision of the Full Court of the Supreme Court.

It is provided by section 4 (5) of the Act that the amount of payments, allowances and benefits under the Act shall be varied in accordance with movements in the State basic wage payable to adult male workers. In the following paragraphs the amounts shown are those which were in operation at 31 December 1970.

Where total or partial incapacity for work results from the injury, the maximum weekly payment during the period of incapacity is, in the case of an adult worker whose average weekly earnings are not less than the basic wage, \$28.50 for a male and \$21.40 for a female, where there are no dependants. In the case of a worker receiving less than the basic wage and without dependants, the maximum payment is derived by applying to \$28.50 (or \$21.40 for a female) the ratio which his (or her) average weekly earnings bear to the basic wage. Where there are dependants, the maximum payment, in respect of both male and female workers, is equal to the amount of the average weekly earnings.

The total liability of the employer in respect of weekly payments, including payments for dependants, is limited to \$11,478. Additional compensation is payable up to a maximum of \$1,722 (or more, if the Board finds that, in particular circumstances, this amount is inadequate) for expenses incurred in respect of first aid and ambulance services, medicines, medical or surgical attendance, hospital treatment, and the like. In the event of the death of the worker, funeral expenses are compensable up to a maximum of \$172.

The Act provides for compensation in the form of a lump-sum payment, up to a maximum of \$11,478, in respect of specified injuries resulting in such disabilities as loss of sight, hearing or mental powers, or loss of a limb or limbs.

Where death results from the injury and the worker leaves any dependants who were wholly dependent on his earnings, the maximum amount of compensation is \$11,604, together with an additional weekly payment of \$3.70 in respect of each dependent child or step-child aged under sixteen years, or under twenty-one years if a full-time student. It is provided that if a worker leaves a widow, a mother, or a dependent child or step-child aged under sixteen years (or under twenty-one years in the case of a full-time student) wholly dependent on his earnings, the minimum payment shall be \$2,811 plus \$3.70 per week for each dependent child. If a worker dies leaving no dependants, reasonable expenses in connection with medical attendance and burial are payable to the person by whom the expenses were properly incurred.

Disability or death caused by certain specified industrial diseases due to the nature of a worker's employment is compensable at the same rates and under the same conditions as those applying in the case of injury.

## INDUSTRIAL ACCIDENTS

The collection of information required for detailed analysis of industrial accidents occurring in Western Australia commenced on 1 July 1961. From that date all insurers and self-insurers have been required to submit a report to the Workers' Compensation Board in respect of each claim for workers' compensation as soon as the claim is closed. Only accidents coming within the scope of the Workers' Compensation Act are included in the statistics, which therefore exclude industrial accidents resulting in the death of, or injury to, self-employed persons and all Commonwealth Government employees. As the statistics relate only to accidents, particulars of cases of industrial disease are excluded.

With few exceptions, an accident to an employee while travelling between his place of residence and place of employment was not compensable in Western Australia until 14 December 1964, when the *Workers' Compensation Act Amendment Act, 1964* came into operation. From that date, the compensation provisions have been extended generally to include such cases. These cases are not, however, included in the statistics which are intended to cover only those accidents occurring at the work site or in the course of the

worker's normal duties. (During the year ended 30 June 1969, 206 claims were reported closed in respect of 'journey' cases involving loss of work for one week or more. The total time lost was 1,177 weeks and the cost of claims amounted to \$61,887.)

For the purpose of the statistics, each claim is regarded as a separate industrial accident and data are prepared from reports of claims closed during the year under review. The item 'cost of claims' refers to *total* payments made (principally in the form of compensation for loss of wages, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore does not necessarily represent amounts actually paid in that year. Similarly, 'time lost' refers to *total* time lost (*i.e.* from date of injury) in respect of claims closed during the year.

The tables in this section include particulars of industrial accidents resulting in death or absence from work of at least one week, *i.e.* a week of five working days. In respect of reopened claims, the additional time lost and additional costs are included in the tables but, to avoid duplication, such cases (of which there were 3,779 in 1968-69) have been excluded from the numbers of accidents shown.

#### INDUSTRIAL ACCIDENTS (a)—NUMBER, TIME LOST, AND COST OF CLAIMS (b)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Number of accidents—					
Fatal .....	32	31	21	18	28
Non-fatal .....	13,903	14,548	14,323	13,812	13,859
Time lost (c) (weeks)—					
Total .....	56,095	59,403	55,506	56,469	53,436
Average per accident .....	4.0	4.1	3.9	4.1	3.9
Cost of claims (b)—					
Fatal accidents .....	\$'000 161	214	85	80	158
Non-fatal accidents .....	2,723	3,189	3,071	3,287	3,310
Total .....	\$'000 2,884	3,403	3,156	3,367	3,468
Average per non-fatal accident .....	\$ 196	219	214	238	239

(a) Accidents resulting in absence from work of one week or more. (b) Refers to *total* payments made (principally compensation for wages lost, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore not necessarily to amounts actually paid in that year. (c) Total time lost (*i.e.* from date of injury) in respect of claims closed during the year.

The following table contains an analysis, according to industry group, of industrial accidents in Western Australia for the year ended 30 June 1969. Accidents have been classified according to the Classification of Industries used in the 1966 Census of Population. The table on page 505 gives an indication of the nature of the sub-groups included in the several industry groups.

#### INDUSTRIAL ACCIDENTS (a)—NUMBER, TIME LOST, AND COST OF CLAIMS (b) INDUSTRY GROUPS : 1968-69

Industry group	Fatal accidents		Non-fatal accidents			
	Number	Cost of claims (b)	Number	Per cent of total	Time lost (c)	Cost of claims (b)
		\$'000			weeks	\$'000
Primary production—						
Mining and quarrying .....	6	33	795	5.7	3,112	200
Other .....	3	20	973	7.0	3,808	247
Manufacturing .....	11	67	4,958	35.8	18,242	1,145
Electricity, gas, water and sanitary services (d) .....	1	12	312	2.3	1,527	88
Building and construction .....	2	10	2,476	17.9	9,952	625
Transport, storage and communication .....	2	4	1,366	9.9	5,191	296
Finance and property .....	.....	.....	23	0.2	102	15
Commerce .....	1	4	1,638	11.8	5,595	359
Public authority (n.e.i.) and defence services ; community and business services .....	1	(e)	743	5.4	3,727	204
Amusement, hotels, cafes, personal service, etc. ....	1	8	573	4.1	2,174	129
Other .....	.....	.....	2	0.0	7	(e)
Total .....	28	158	13,859	100.0	53,436	3,310

(a) Accidents resulting in absence from work of one week or more. (b) See note (b) to previous table. (c) See note (c) to previous table. (d) Production, supply and maintenance. (e) Less than \$500.

The following table gives a classification, according to duration of time lost, of industrial accidents in Western Australia for the year ended 30 June 1969.

INDUSTRIAL ACCIDENTS (a)—DURATION OF TIME LOST : 1968-69

Duration of time lost (weeks)				Males		Females		Total	
				Number	Time lost (weeks)	Number	Time lost (weeks)	Number	Time lost (weeks)
1 and under	2	....	....	6,458	8,176	675	853	7,133	9,029
2 "	4	....	....	3,365	8,816	355	919	3,720	9,735
4 "	6	....	....	1,078	5,087	104	483	1,182	5,570
6 "	8	....	....	576	3,844	54	368	630	4,212
8 "	13	....	....	645	6,318	58	578	703	6,896
13 "	26	....	....	310	5,301	34	582	344	5,883
26 "	52	....	....	97	3,425	14	467	111	3,892
52 "	104	....	....	25	1,788	3	182	28	1,969
104 "	156	....	....	4	531	3	398	7	929
156 and over		....	....	1	177	....	....	1	177
Reopened claims (b)		....	....	....	4,697	....	446	....	5,143
Total	....	....	....	12,559	48,161	1,300	5,275	13,859	53,436

(a) Non-fatal accidents resulting in absence from work of one week or more. (b) Additional time lost which cannot be allocated to appropriate groups. The number of reopened claims reported was 3,779.

Statistics in greater detail, as well as analyses according to additional characteristics, are available in the publications, *Industrial Accidents (Series A)*, which relates to accidents resulting in death or absence from work for one day or more, and *Industrial Accidents (Series B)*, relating to accidents resulting in death or absence from work for one week or more. These publications, which are in mimeographed form, are issued annually by the Western Australian Office of the Commonwealth Bureau of Census and Statistics.

## *Chapter X—continued*

### **Part 2—Employment**

NOTE. In addition to the employment data appearing in this Part, references to the numbers of persons engaged in particular activities are to be found elsewhere in the Year Book. In Chapter V, for example, Part 1—*Education* shows numbers engaged in teaching, Part 3—*Health Services, Hospitals, Care of the Aged and Disabled* contains details of hospital staffs, and employment in building appears in Part 4—*Housing and Building*. In Chapter VIII, Part 1—*Primary Production* gives male employment on rural holdings, at mines and in fishing, and Part 2—*Secondary Production* includes tables relating wholly, or in part, to employment in factories. Chapter IX, Part 3—*Transport* shows numbers engaged in various types of transport undertakings.

*All tables in this Part which contain information compiled from census schedules exclude particulars of full-blood Aborigines, as required by section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines on page 126.*

The most detailed and comprehensive statistics of employment of the population are those which are derived from the periodic Population Census. Among the most useful of the tabulations based on these enumerations are those which classify the population according to occupational status and industry.

#### THE WORK FORCE

It is customary in modern census practice to distinguish between the economically active and inactive sectors of the community on the basis of those 'In the Work Force' and those 'Not in the Work Force'.

The *work force* comprises all persons engaged in an industry, business, trade, or service, and includes persons who were not working at the time of the census. It includes employers, the self-employed (*i.e.* persons working on own account but not employing others), employees on wage or salary, and unpaid helpers (other than those usually working in such activities for less than fifteen hours per week).

Persons *not in the work force* include children not attending school; full-time students and children attending school; persons of independent means; those engaged in home duties; pensioners and annuitants; and inmates of institutions.

The comprehensive tables resulting from the census include detailed analyses of the work force according to such characteristics as age, marital status, religion, birthplace, occupational status, industry and occupation. For the purpose of this Chapter, only a selection of the tables, in condensed form, relating to occupational status, industry and occupation have been included.

At the Census of 30 June 1966 there were 246,155 males in the work force, representing 57·69 per cent of the total male population.

The number of females in the work force at the 1966 Census was 93,424, or 22·79 per cent of the female population. Of this total, 45,286, equivalent to 48·47 per cent of females in the work force, were married women, including women married but permanently separated.

The 1966 Census work force statistics are not strictly comparable with those of earlier censuses. For a detailed explanation of the new approach adopted at the 1966 Census, the reader is referred to *Census Bulletin No. 5.1—Summary of Population: Western Australia*, issued November 1967 by the Commonwealth Statistician, Canberra. The net effect of the new definition is to include approximately 8,100 additional persons in the Western Australian work force, a proportional increase of approximately 2·4 per cent.



## Classification according to Occupational Status

POPULATION CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS  
CENSUS, 30 JUNE 1966

Occupational status	Males	Females	Persons	Percentage of population		
				Males	Females	Persons
In work force—						
Employed—						
Employer .....	21,383	4,700	26,083	5·01	1·15	3·12
Self-employed .....	25,136	4,689	29,825	5·89	1·14	3·56
Employee (on wage or salary) .....	195,704	79,661	275,365	45·87	19·43	32·91
Helper (not on wage or salary) .....	994	2,310	3,304	0·23	0·56	0·39
Total Employed .....	243,217	91,360	334,577	57·00	22·28	39·99
Unemployed .....	2,938	2,064	5,002	0·69	0·50	0·60
Total in work force .....	246,155	93,424	339,579	57·69	22·79	40·59
Not in work force—						
Child not at school .....	48,732	46,195	94,927	11·42	11·27	11·35
Child attending school or full-time student .....	97,401	90,728	188,129	22·83	22·13	22·49
Mainly dependent on pension or superannuation .....	22,374	32,163	54,537	5·24	7·84	6·52
Of independent means .....	3,626	3,402	7,028	0·85	0·83	0·84
Home duties .....	.....	137,269	137,269	.....	33·48	16·41
Inmates of institutions .....	3,094	3,166	6,260	0·73	0·77	0·75
Others not in work force .....	5,309	3,635	8,944	1·24	0·89	1·07
Total not in work force .....	180,536	316,558	497,094	42·31	77·21	59·41
GRAND TOTAL .....	426,691	409,982	836,673	100·00	100·00	100·00

POPULATION ACCORDING TO OCCUPATIONAL STATUS—AUSTRALIA  
CENSUS, 30 JUNE 1966

Occupational status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
MALES									
In work force—									
Employed—									
Employer.....	83,466	67,236	44,111	23,747	21,383	8,245	815	1,388	250,391
Self-employed .....	106,723	92,302	49,463	31,135	25,136	9,162	601	1,286	315,808
Employee (on wage or salary) .....	1,058,213	777,217	379,207	259,105	195,704	87,572	12,796	27,304	2,797,118
Helper (not on wage or salary) .....	4,564	3,333	2,486	1,167	994	432	26	46	13,048
Total Employed .....	1,252,966	940,088	475,267	315,154	243,217	105,411	14,238	30,024	3,376,365
Unemployed .....	18,421	10,139	7,964	4,464	2,938	1,147	162	214	45,449
Total in work force .....	1,271,387	950,227	483,231	319,618	246,155	106,558	14,400	30,238	3,421,814
Not in work force .....	853,075	663,677	360,666	228,912	180,536	80,832	7,108	19,739	2,394,545
Total males .....	2,124,462	1,613,904	843,897	548,530	426,691	187,390	21,508	49,977	5,816,359
FEMALES									
In work force—									
Employed—									
Employer.....	19,774	16,747	10,517	6,228	4,700	1,759	225	271	60,221
Self-employed .....	23,170	20,008	11,306	7,205	4,689	1,644	134	263	68,419
Employee (on wage or salary) .....	474,185	374,625	149,378	111,197	79,661	35,451	4,171	12,774	1,241,442
Helper (not on wage or salary) .....	12,566	8,191	5,483	2,613	2,310	940	76	138	32,317
Total Employed .....	529,695	419,571	176,684	127,243	91,360	39,794	4,606	13,446	1,402,399
Unemployed .....	13,070	7,250	4,954	3,563	2,064	971	138	232	32,242
Total in work force .....	542,765	426,821	181,638	130,806	93,424	40,765	4,744	13,678	1,434,641
Not in work force .....	1,566,595	1,178,801	638,150	412,539	316,558	143,280	11,181	32,358	4,299,462
Total females .....	2,109,360	1,605,622	819,788	543,345	409,982	184,045	15,925	46,036	5,734,103

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—MALES  
CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
<b>Employers—</b>								
Never married .....	186	473	555	256	183	132	42	1,827
Married .....	6	376	3,711	5,504	5,109	3,358	854	18,918
Married but permanently separated .....	.....	2	33	69	72	51	19	246
Widowed .....	.....	1	6	24	45	74	87	237
Divorced .....	1	.....	17	36	53	35	13	155
<b>Total .....</b>	<b>193</b>	<b>852</b>	<b>4,322</b>	<b>5,889</b>	<b>5,462</b>	<b>3,650</b>	<b>1,015</b>	<b>21,383</b>
<b>Self-employed—</b>								
Never married .....	575	1,234	1,111	602	450	414	144	4,530
Married .....	11	652	4,512	5,488	4,336	3,544	1,100	19,643
Married but permanently separated .....	.....	5	59	92	87	65	29	337
Widowed .....	.....	1	2	22	48	142	139	354
Divorced .....	.....	1	23	76	70	79	23	272
<b>Total .....</b>	<b>586</b>	<b>1,893</b>	<b>5,707</b>	<b>6,280</b>	<b>4,991</b>	<b>4,244</b>	<b>1,435</b>	<b>25,136</b>
<b>Employees (on wage or salary)—</b>								
Never married .....	26,456	17,305	9,448	4,468	2,783	2,054	372	62,886
Married .....	422	8,127	31,008	35,293	27,719	19,600	2,407	124,576
Married but permanently separated .....	3	133	722	1,038	986	667	103	3,652
Widowed .....	6	15	59	230	534	983	325	2,152
Divorced .....	8	28	302	660	765	607	68	2,438
<b>Total .....</b>	<b>26,895</b>	<b>25,608</b>	<b>41,539</b>	<b>41,689</b>	<b>32,787</b>	<b>23,911</b>	<b>3,275</b>	<b>195,704</b>
<b>Helpers (not on wage or salary)—</b>								
Never married .....	402	150	42	11	12	25	27	669
Married .....	.....	19	30	31	41	57	77	255
Married but permanently separated .....	.....	1	1	2	.....	9	4	17
Widowed .....	.....	.....	.....	.....	3	6	30	39
Divorced .....	.....	.....	1	1	2	3	7	14
<b>Total .....</b>	<b>402</b>	<b>170</b>	<b>74</b>	<b>45</b>	<b>58</b>	<b>100</b>	<b>145</b>	<b>994</b>
<b>Total employed—</b>								
Never married .....	27,619	19,162	11,156	5,337	3,428	2,625	585	69,912
Married .....	439	9,174	39,261	46,316	37,205	26,559	4,438	163,392
Married but permanently separated .....	3	141	815	1,201	1,145	792	155	4,252
Widowed .....	6	17	67	276	630	1,205	581	2,782
Divorced .....	9	29	343	773	890	724	111	2,879
<b>TOTAL EMPLOYED .....</b>	<b>28,076</b>	<b>28,523</b>	<b>51,642</b>	<b>53,903</b>	<b>43,298</b>	<b>31,905</b>	<b>5,870</b>	<b>243,217</b>
<b>Unemployed—</b>								
Never married .....	533	351	263	136	89	80	20	1,472
Married .....	6	85	278	329	236	232	58	1,224
Married but permanently separated .....	.....	3	24	36	31	20	4	118
Widowed .....	.....	3	1	6	14	21	9	54
Divorced .....	.....	2	8	16	25	15	4	70
<b>Total Unemployed .....</b>	<b>539</b>	<b>444</b>	<b>574</b>	<b>523</b>	<b>395</b>	<b>368</b>	<b>95</b>	<b>2,938</b>
<b>Total in work force—</b>								
Never married .....	28,152	19,513	11,419	5,473	3,517	2,705	605	71,384
Married .....	445	9,259	39,539	46,645	37,441	26,791	4,496	164,616
Married but permanently separated .....	3	144	839	1,237	1,176	812	159	4,370
Widowed .....	6	20	68	282	644	1,226	590	2,836
Divorced .....	9	31	351	789	915	739	115	2,949
<b>TOTAL IN WORK FORCE .....</b>	<b>28,615</b>	<b>28,967</b>	<b>52,216</b>	<b>54,426</b>	<b>43,693</b>	<b>32,273</b>	<b>5,965</b>	<b>246,155</b>
<b>Not in work force—</b>								
Never married .....	12,090	1,920	873	572	586	1,199	2,564	(a) 19,804
Married .....	7	133	475	753	1,086	3,803	14,366	20,623
Married but permanently separated .....	1	9	34	80	138	251	651	1,164
Widowed .....	1	1	5	19	58	354	4,378	4,816
Divorced .....	.....	2	20	54	93	216	407	792
<b>Total not in work force .....</b>	<b>12,099</b>	<b>2,065</b>	<b>1,407</b>	<b>1,478</b>	<b>1,961</b>	<b>5,823</b>	<b>22,366</b>	<b>(a) 47,199</b>
<b>Total Males—</b>								
Never married .....	40,242	21,433	12,292	6,045	4,103	3,904	3,169	(a) 91,188
Married .....	452	9,392	40,014	47,398	38,527	30,594	18,862	185,239
Married but permanently separated .....	4	153	873	1,317	1,314	1,063	810	5,534
Widowed .....	7	21	73	301	702	1,580	4,968	7,652
Divorced .....	9	33	371	843	1,008	955	522	3,741
<b>GRAND TOTAL .....</b>	<b>40,714</b>	<b>31,032</b>	<b>53,623</b>	<b>55,904</b>	<b>45,654</b>	<b>38,096</b>	<b>28,331</b>	<b>(a) 293,354</b>

(a) Excludes 43,524 males aged 0-4 years, 45,791 males aged 5-9 years and 44,022 males aged 10-14 years not in the work force.

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—FEMALES  
CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
<b>Employers—</b>								
Never married	8	24	24	22	44	50	16	188
Married	7	122	869	1,328	1,122	497	58	4,003
Married but permanently separated			5	21	18	13	4	61
Widowed		1	3	24	113	154	81	376
Divorced			4	24	20	23	1	72
<b>Total</b>	<b>15</b>	<b>147</b>	<b>905</b>	<b>1,419</b>	<b>1,317</b>	<b>737</b>	<b>160</b>	<b>4,700</b>
<b>Self-employed—</b>								
Never married	38	44	30	35	61	83	42	333
Married	10	186	907	1,145	989	509	87	3,833
Married but permanently separated		3	13	23	30	21	2	92
Widowed			5	35	79	132	95	346
Divorced			7	19	38	18	3	85
<b>Total</b>	<b>48</b>	<b>233</b>	<b>962</b>	<b>1,257</b>	<b>1,197</b>	<b>763</b>	<b>229</b>	<b>4,689</b>
<b>Employees (on wage or salary)—</b>								
Never married	23,301	9,117	3,330	1,594	1,473	1,249	339	40,403
Married	730	4,719	7,157	10,165	6,831	2,215	176	31,993
Married but permanently separated	24	195	507	748	705	277	29	2,485
Widowed	6	14	84	402	1,130	1,157	317	3,110
Divorced	2	23	260	532	541	280	32	1,670
<b>Total</b>	<b>24,063</b>	<b>14,068</b>	<b>11,338</b>	<b>13,441</b>	<b>10,680</b>	<b>5,178</b>	<b>893</b>	<b>79,661</b>
<b>Helpers (not on wage or salary)—</b>								
Never married	159	55	29	17	10	11	5	286
Married	15	127	413	508	500	259	60	1,882
Married but permanently separated		3	12	10	4	4	4	37
Widowed		1	3	2	12	33	34	85
Divorced		1	5	4	5	5		20
<b>Total</b>	<b>174</b>	<b>187</b>	<b>462</b>	<b>541</b>	<b>531</b>	<b>312</b>	<b>103</b>	<b>2,310</b>
<b>Total employed—</b>								
Never married	23,506	9,240	3,413	1,668	1,588	1,393	402	41,210
Married	762	5,154	9,346	13,146	9,442	3,480	381	41,711
Married but permanently separated	24	201	537	802	757	315	39	2,675
Widowed	6	16	95	463	1,334	1,476	527	3,917
Divorced	2	24	276	579	604	326	36	1,847
<b>TOTAL EMPLOYED</b>	<b>24,300</b>	<b>14,635</b>	<b>13,667</b>	<b>16,658</b>	<b>13,725</b>	<b>6,990</b>	<b>1,385</b>	<b>91,360</b>
<b>Unemployed—</b>								
Never married	663	228	82	18	16	15		1,022
Married	47	167	219	211	99	28	10	781
Married but permanently separated	4	17	21	36	33	8		119
Widowed		3	2	10	31	31	17	94
Divorced		2	10	13	12	9	2	48
<b>Total Unemployed</b>	<b>714</b>	<b>417</b>	<b>334</b>	<b>288</b>	<b>191</b>	<b>91</b>	<b>29</b>	<b>2,064</b>
<b>Total in work force—</b>								
Never married	24,169	9,468	3,495	1,686	1,604	1,408	402	42,232
Married	809	5,321	9,565	13,357	9,541	3,508	391	42,492
Married but permanently separated	28	218	558	838	790	323	39	2,794
Widowed	6	19	97	473	1,365	1,507	544	4,011
Divorced	2	26	286	592	616	335	38	1,895
<b>TOTAL IN WORK FORCE</b>	<b>25,014</b>	<b>15,052</b>	<b>14,001</b>	<b>16,946</b>	<b>13,916</b>	<b>7,081</b>	<b>1,414</b>	<b>93,424</b>
<b>Not in work force—</b>								
Never married	11,191	1,099	724	557	625	1,209	2,555	(a) 17,960
Married	2,356	12,134	34,202	32,490	26,989	20,116	12,274	140,561
Married but permanently separated	14	144	556	697	568	618	595	3,192
Widowed	2	22	179	531	1,743	5,043	18,603	26,123
Divorced	3	25	180	300	404	513	454	1,879
<b>Total not in work force</b>	<b>13,566</b>	<b>13,424</b>	<b>35,841</b>	<b>34,575</b>	<b>30,329</b>	<b>27,499</b>	<b>34,481</b>	<b>(a) 189,715</b>
<b>Total Females—</b>								
Never married	35,360	10,567	4,219	2,243	2,229	2,617	2,957	(a) 60,192
Married	3,165	17,455	43,767	45,847	36,530	23,624	12,665	183,053
Married but permanently separated	42	362	1,114	1,535	1,358	941	634	5,986
Widowed	8	41	276	1,004	3,108	6,550	19,147	30,134
Divorced	5	51	466	892	1,020	848	492	3,774
<b>GRAND TOTAL</b>	<b>38,580</b>	<b>28,476</b>	<b>49,842</b>	<b>51,521</b>	<b>44,245</b>	<b>34,580</b>	<b>35,895</b>	<b>(a) 283,139</b>

(a) Excludes 41,286 females aged 0-4 years, 43,428 females aged 5-9 years and 42,129 females aged 10-14 years not in the work force.

### Classification according to Industry

For census purposes, industry may be defined as any single *branch of productive activity, trade or service*. It is concerned with the activities of persons, firms or businesses considered as a group producing the same commodity, performing the same process or providing the same service. All persons engaged in any such branch of economic activity are classified industrially as belonging to that particular branch irrespective of their personal occupation within the industry. Examples are: Mining, which includes, in addition to miners and prospectors, such persons as laboratory technicians, transport workers and office staff employed by mining companies; Shipping, which covers staff members of shipping companies and agencies, as well as ships' crews; professional activities such as Medicine, Law and Architecture which include not only qualified practitioners but also persons employed by them as, for example, receptionists, law clerks and draftsmen.

Classification according to industry at the 1966 Census has been made on the basis of the *Classification and Classified List of Industries—Revised: June 1966*, published by the Commonwealth Statistician, Canberra. The Classification divides the work force into 14 Major Groups which, in turn, are divided into 53 Sub-groups and 342 Industry Categories.

In the following table, the work force at 30 June 1966 is classified according to the main industrial groups such as Primary Production; Mining and Quarrying; Manufacturing; and so on. It should be noted that the particulars shown under Public Authority Activities (n.e.i.) are residual figures comprising those persons in the administrative sphere of general government, local government and foreign consular services who have not been classified elsewhere. They do not, therefore, represent the total number of persons engaged in or attached to all fields of government service, Commonwealth, State or Local.

INDUSTRY AND OCCUPATIONAL STATUS OF THE WORK FORCE  
CENSUS, 30 JUNE 1966

Industry group	In work force					Total in work force
	Employed				Un-employed	
	Em- ployer	Self- employed	Employee (on wage or salary)	Helper (not on wage or salary)		
MALES						
Primary production	8,260	14,052	13,555	727	370	36,964
Mining and quarrying	58	185	7,665	9	104	8,021
Manufacturing	2,018	1,347	46,817	49	314	50,545
Electricity, gas, water and sanitary services	25	18	5,437	2	26	5,508
Building and construction	2,613	3,024	27,758	26	465	33,886
Transport and storage	758	2,035	19,168	12	145	22,118
Communication	...	...	5,680	3	15	5,698
Finance and property	361	511	6,460	9	10	7,351
Commerce	4,392	2,416	29,779	67	221	36,875
Public authority (n.e.i.) and defence services	...	...	10,843	...	43	10,886
Community and business services (including professional)	1,519	411	15,777	48	67	17,822
Amusement, hotels, cafes, personal service, etc.	1,340	1,072	5,644	29	90	8,175
Other (a)	39	65	1,121	13	1,068	2,306
Total males in work force	21,383	25,136	195,704	994	2,938	246,155
FEMALES						
Primary production	1,248	1,949	1,960	1,294	23	6,474
Mining and quarrying	2	1	306	1	...	310
Manufacturing	347	271	9,517	84	129	10,348
Electricity, gas, water and sanitary services	4	4	334	3	1	346
Building and construction	205	54	862	55	5	1,181
Transport and storage	114	139	1,478	45	8	1,784
Communication	...	...	1,326	3	12	1,341
Finance and property	51	78	4,250	17	21	4,417
Commerce	1,601	1,164	20,884	335	217	24,201
Public authority (n.e.i.) and defence services	...	...	3,022	...	30	3,052
Community and business services (including professional)	189	347	23,527	84	225	24,372
Amusement, hotels, cafes, personal service, etc.	909	608	10,461	189	206	12,373
Other (a)	30	74	1,734	200	1,187	3,225
Total females in work force	4,700	4,689	79,661	2,310	2,064	93,424

(a) Comprises the groups *Other industries* and *Industry inadequately described or not stated*.

INDUSTRY OF THE POPULATION  
CENSUS, 30 JUNE 1966

Industry group and sub-group (a)	Males	Females	Persons		
			Number	Percentage of—	
				Work force	Population
Primary production—					
Rural industries .....	34,267	6,375	40,642	11·97	4·86
Other primary production (b) .....	2,697	99	2,796	0·82	0·33
Total, Primary production.....	36,964	6,474	43,438	12·79	5·19
Mining and quarrying .....	8,021	310	8,331	2·45	1·00
Manufacturing—					
Cement, bricks, glass and stone .....	3,507	289	3,796	1·12	0·45
Founding, engineering and metal working .....	14,795	1,606	16,401	4·83	1·96
Manufacture, assembly and repair of ships, vehicles, and parts .....	8,337	369	8,706	2·56	1·04
Food, drink and tobacco .....	7,112	2,610	9,722	2·86	1·16
Sawmilling, wood products (other than furniture) .....	5,057	316	5,373	1·58	0·64
Paper and paper products, printing, packaging, bookbinding and photography .....	3,610	1,396	5,006	1·47	0·60
Other and undefined .....	8,127	3,762	11,889	3·50	1·42
Total, Manufacturing .....	50,545	10,348	60,893	17·93	7·28
Electricity, gas, water and sanitary services (c) .....	5,508	346	5,854	1·72	0·70
Building and construction—					
Construction and repair of buildings .....	20,625	931	21,556	6·35	2·58
Construction works (other than buildings) .....	13,261	250	13,511	3·98	1·61
Total, Building and construction .....	33,886	1,181	35,067	10·33	4·19
Transport and storage—					
Road transport .....	8,648	972	9,620	2·83	1·15
Rail and air transport .....	7,614	518	8,132	2·39	0·97
Other transport; storage .....	5,856	294	6,150	1·81	0·74
Total, Transport and storage .....	22,118	1,784	23,902	7·04	2·86
Communication .....	5,698	1,341	7,039	2·07	0·84
Finance and property—					
Banking .....	3,398	1,674	5,072	1·49	0·61
Insurance .....	2,003	1,413	3,416	1·01	0·41
Other finance and property .....	1,950	1,330	3,280	0·97	0·39
Total, Finance and property .....	7,351	4,417	11,768	3·47	1·41
Commerce—					
Wholesale trade .....	13,774	4,612	18,386	5·41	2·20
Livestock and primary produce dealing, etc. ....	3,365	727	4,092	1·21	0·49
Retail trade .....	19,736	18,862	38,598	11·37	4·61
Total, Commerce .....	36,875	24,201	61,076	17·99	7·30
Public authority (n.e.i.) and defence services .....	10,886	3,052	13,938	4·10	1·67
Community and business services (including professional)—					
Health, hospitals, etc. ....	4,295	12,084	16,379	4·82	1·96
Education .....	6,477	7,969	14,446	4·25	1·73
Other (including professional) .....	7,050	4,319	11,369	3·35	1·36
Total, Community and business services .....	17,822	24,372	42,194	12·43	5·04
Amusement, hotels and other accommodation, cafes, etc. (d)—					
Amusement, sport and recreation .....	2,737	1,234	3,971	1·17	0·47
Hotels, boarding houses and other accommodation, restaurants .....	3,171	6,616	9,787	2·88	1·17
Other personal services .....	2,267	4,523	6,790	2·00	0·81
Total, Amusement, hotels, etc. ....	8,175	12,373	20,548	6·05	2·46
Other industries and industry inadequately described (e) .....	2,306	3,225	5,531	1·63	0·66
Grand Total—Persons in the work force .....	246,155	93,424	339,579	100·00	40·59
Persons not in the work force .....	180,536	316,558	497,094	....	59·41
TOTAL POPULATION .....	426,691	409,982	836,673	....	100·00

(a) Only those sub-groups in which more than 1 per cent of the work force (equivalent to 3,396 persons) were recorded are shown separately. (b) Comprises *Fishing; Hunting and trapping; and Forestry*. (c) Production, supply and maintenance. (d) Includes *Personal service and Private domestic service*. (e) Includes *Industry not stated*.

INDUSTRY OF THE WORK FORCE—CENSUS, 30 JUNE 1966  
CLASSIFICATION ACCORDING TO STATISTICAL DIVISION

Statistical Division	Primary (including mining and quarrying)	Manu- facturing	Build- ing and construc- tion	Trans- port, storage and commu- nication	Com- merce	Com- munity and business services (a)	Amuse- ment, hotels, cafes, etc. (b)	Other indus- tries (c)	Total (all indus- tries)
MALES									
Perth Statistical Division	5,921	41,653	19,959	17,973	27,861	13,809	5,921	20,367	153,464
Other Divisions—									
South-West	7,138	4,125	2,430	2,011	2,240	916	557	1,562	20,979
Southern Agricultural	6,411	1,280	1,520	1,182	1,780	564	321	716	13,774
Central Agricultural	8,958	1,260	2,367	1,718	2,104	794	385	1,125	18,711
Northern Agricultural	6,330	725	1,397	1,050	1,309	530	311	659	12,311
Eastern Goldfields	5,594	625	1,314	989	985	563	321	692	11,083
Central	889	28	164	106	58	44	35	72	1,396
North-West	1,130	207	1,686	255	181	220	146	224	4,049
Pilbara	1,445	91	2,247	285	158	148	101	207	4,682
Kimberley	1,126	501	772	410	178	211	68	316	3,582
Total	39,021	8,842	13,897	8,006	8,993	3,990	2,245	5,573	90,567
Total, all Divisions	44,942	50,495	33,856	25,979	36,854	17,799	8,166	25,940	244,031
Migratory (d)	43	50	30	1,837	21	23	9	111	2,124
Total males in work force	44,985	50,545	33,886	27,816	36,875	17,822	8,175	26,051	246,155
FEMALES									
Perth Statistical Division	1,249	9,234	919	2,049	18,619	18,918	8,269	8,814	68,071
Other Divisions—									
South-West	1,067	379	52	242	1,524	1,385	914	589	6,152
Southern Agricultural	1,151	319	40	171	978	835	626	356	4,476
Central Agricultural	1,643	116	47	232	1,192	1,134	765	442	5,571
Northern Agricultural	836	102	31	173	755	712	617	303	3,529
Eastern Goldfields	325	75	21	88	757	763	563	294	2,886
Central	103	3	2	19	46	86	120	24	403
North-West	208	57	32	30	121	143	196	71	858
Pilbara	85	3	20	26	79	117	126	52	508
Kimberley	110	39	17	62	121	259	167	69	844
Total	5,528	1,093	262	1,043	5,573	5,434	4,094	2,200	25,227
Total, all Divisions	6,777	10,327	1,181	3,092	24,192	24,352	12,363	11,014	93,298
Migratory (d)	7	21	...	33	9	20	10	26	126
Total females in work force	6,784	10,348	1,181	3,125	24,201	24,372	12,373	11,040	93,424
PERSONS									
Perth Statistical Division	7,170	50,887	20,878	20,022	46,480	32,727	14,190	29,181	221,535
Other Divisions—									
South-West	8,205	4,504	2,482	2,253	3,764	2,301	1,471	2,151	27,131
Southern Agricultural	7,562	1,599	1,560	1,353	2,758	1,399	947	1,072	18,250
Central Agricultural	10,601	1,376	2,414	1,950	3,296	1,928	1,150	1,567	24,282
Northern Agricultural	7,166	827	1,428	1,223	2,064	1,242	928	962	15,840
Eastern Goldfields	5,919	700	1,335	1,077	1,742	1,326	884	986	13,969
Central	992	31	166	125	104	130	155	96	1,799
North-West	1,338	264	1,718	285	302	363	342	295	4,907
Pilbara	1,530	94	2,267	311	237	265	227	259	5,190
Kimberley	1,236	540	789	472	299	470	235	385	4,426
Total	44,549	9,935	14,159	9,049	14,566	9,424	6,339	7,773	115,794
Total, all Divisions	51,719	60,822	35,037	29,071	61,046	42,151	20,529	36,954	337,329
Migratory (d)	50	71	30	1,870	30	43	19	137	2,250
Total persons in work force	51,769	60,893	35,067	30,941	61,076	42,194	20,548	37,091	339,579

(a) Including Professional. (b) Includes Private domestic service and Other personal services. (c) Comprises Electricity, gas, water and sanitary services (production, supply and maintenance); Finance and property; Public authority (n.e.i.) and defence services; and Industry inadequately described or not stated. (d) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains motor coaches or aircraft.

# Industry of the Work Force

CENSUS, 30 JUNE 1966  
MALES AND FEMALES

MALES

FEMALES

thousands 10 20 30 40 50 60

PRIMARY PRODUCTION

MINING AND QUARRYING

MANUFACTURING

ELECTRICITY, GAS, WATER AND  
SANITARY SERVICES

BUILDING AND CONSTRUCTION

TRANSPORT AND STORAGE AND  
COMMUNICATION

FINANCE AND PROPERTY

COMMERCE

PUBLIC AUTHORITY (N.E.I.) AND  
DEFENCE SERVICES

COMMUNITY AND BUSINESS SERVICES  
(INCLUDING PROFESSIONAL)

AMUSEMENT, HOTELS, CAFES,  
PERSONAL SERVICES, ETC.

OTHER INDUSTRIES AND  
INDUSTRY NOT STATED



Classification of the components of the work force according to industry, as in the table on page 504, furnishes much useful information. It is interesting to note, for example, the preponderance of employers and the self-employed in Primary Production. Of the 43,438 persons engaged in this industry at 30 June 1966 nearly 60 per cent were in one or other of these categories.

### Classification according to Occupation

Occupation is defined as the nature of the work which a person performs, and implies *personal* performance. It may be based on the material treated, the process carried out or the type of service rendered by an *individual* worker. Thus the occupation of a person is the kind of work that he or she personally performs, as distinct from industry, which is defined as any single *branch of productive activity, trade or service* and is not concerned with the nature of personal performance.

The Classification of Occupations used in the tabulation of the 1966 Census data has been adapted from and closely adheres to the principles embodied in the International Standard Classification of Occupations issued by the International Labour Office, Geneva, 1958. The International Standard Classification of Occupations was prepared after extensive discussions and research by world experts in this field to provide an adequate classification framework for countries interested in occupational classification and, at the same time, provide a basis for international comparison of occupational data obtained mainly from Censuses of Population. The Australian Classification of Occupations contains 11 Major Groups, 72 Minor Groups and 313 Occupation Categories. In accordance with the International Standard Classification, occupations have been grouped by the general similarity of the characteristics of the work they entail.

Complete descriptions of Major Groups, Minor Groups and Categories, together with a list of occupation titles included under each heading, are contained in the *Classification and Classified List of Occupations—Revised: June 1966*, published by the Commonwealth Statistician, Canberra.

The following table shows the numbers and the proportions of the Western Australian work force in each of the major groups of occupations, as recorded at the Census of 30 June 1966.

WORK FORCE CLASSIFIED ACCORDING TO OCCUPATION GROUP  
CENSUS, 30 JUNE 1966

Occupation group	Males	Females	Persons	Percentage of total		
				Males	Females	Persons
Professional, technical and related workers ....	17,937	13,327	31,264	7.29	14.27	9.21
Administrative, executive and managerial workers ....	17,703	2,115	19,818	7.19	2.26	5.84
Clerical workers ....	20,307	27,193	47,500	8.25	29.11	13.99
Sales workers ....	12,862	14,385	27,247	5.23	15.40	8.02
Farmers, fishermen, hunters, timber getters and related workers	38,385	6,081	44,466	15.59	6.51	13.09
Miners, quarrymen and related workers ....	4,709	1	4,710	1.91	0.00	1.39
Workers in transport and communication occupations	20,382	2,315	22,697	8.28	2.48	6.68
Craftsmen, production-process workers and labourers, n.e.c.	100,081	6,648	106,729	40.66	7.12	31.43
Service, sport and recreation workers ....	9,747	18,295	28,042	3.96	19.58	8.26
Members of armed services ....	2,368	84	2,452	0.96	0.09	0.72
Occupation inadequately described or not stated ....	1,674	2,980	4,654	0.68	3.19	1.37
Total in work force ....	246,155	93,424	339,579	100.00	100.00	100.00

n.e.c. denotes 'not elsewhere classified'.

### Labour Force Survey

Estimates of the civilian labour force are prepared each quarter by the Commonwealth Statistician. They are based on the results of the population survey, which is carried out on a 1 per cent sample throughout Australia in February, May, August and November each year. About 38,000 private dwellings (houses, flats, etc.) are visited during each survey, as well as a sample of other dwellings (hotels, motels, etc.). The survey information is obtained by means of personal interviews carried out by specially trained enumerators.



The figures shown in the accompanying table are taken from the publication *The Labour Force*, issued by the Commonwealth Statistician, Canberra, to which the reader is referred for statistics in greater detail. All published figures relate to Australia as a whole, and separate particulars for Western Australia are not available.

**Population Coverage.** The sample used in the surveys covers the six States, the Northern Territory and the Australian Capital Territory. The estimates relate to all persons aged fifteen years and over, except members of the permanent armed forces, national servicemen enlisted in the Regular Army Supplement and certain diplomatic personnel customarily excluded from census and estimated populations.

### CIVILIAN POPULATION AGED 15 YEARS AND OVER (a)—EMPLOYMENT STATUS AUSTRALIA

(Figures for November 1969 revised since previous issue)

November—	Employed (b)			Unemployed (b)		Total labour force (b)		Not in labour force (b) ('000)	Civilian population aged 15 and over (a) ('000)		
	Agri- culture ('000)	Other industries ('000)	Total ('000)	Number ('000)	Per cent of labour force	Number ('000)	Per cent of population (c)				
MALES											
1966	....	....	364.8	3,001.6	3,366.5	32.3	1.0	3,398.8	83.7	664.1	4,062.9
1967	....	....	372.1	3,055.3	3,427.4	35.3	1.0	3,462.7	83.5	685.2	4,147.9
1968	....	....	371.2	3,121.2	3,492.4	35.2	1.0	3,527.6	83.1	719.5	4,247.1
1969	....	....	373.1	3,194.9	3,568.0	43.3	1.2	3,611.3	83.1	735.6	4,346.9
1970	....	....	367.8	3,271.0	3,638.9	39.3	1.1	3,678.2	82.7	768.2	4,446.4
MARRIED WOMEN											
1966	....	....	47.9	700.6	748.4	14.4	1.9	762.8	28.5	1,916.6	2,679.4
1967	....	....	46.3	763.9	810.2	15.9	1.9	826.2	30.1	1,916.9	2,743.0
1968	....	....	47.2	806.7	854.0	16.6	1.9	870.6	31.0	1,941.4	2,812.0
1969	....	....	55.5	896.2	951.7	19.8	2.0	971.5	33.5	1,930.9	2,902.5
1970	....	....	61.1	980.3	1,041.5	17.9	1.7	1,059.4	35.4	1,929.3	2,988.7
OTHER FEMALES (d)											
1966	....	....	16.7	678.0	694.7	20.9	2.9	715.5	49.6	726.7	1,442.2
1967	....	....	12.6	679.4	692.0	22.5	3.2	714.6	48.6	755.0	1,469.6
1968	....	....	11.8	687.9	699.7	21.0	2.9	720.6	48.1	778.1	1,498.7
1969	....	....	14.7	686.3	701.0	23.4	3.2	724.4	48.0	786.0	1,510.4
1970	....	....	12.4	695.8	708.2	18.7	2.6	726.8	47.7	796.2	1,523.0
ALL FEMALES											
1966	....	....	64.5	1,378.6	1,443.1	35.2	2.4	1,478.4	35.9	2,643.2	4,121.6
1967	....	....	58.9	1,443.3	1,502.2	38.5	2.5	1,540.7	36.6	2,671.9	4,212.6
1968	....	....	59.1	1,494.6	1,553.7	37.5	2.4	1,591.2	36.9	2,719.5	4,310.7
1969	....	....	70.3	1,582.5	1,652.7	43.3	2.6	1,696.0	38.4	2,716.9	4,412.9
1970	....	....	73.5	1,676.1	1,749.6	36.6	2.0	1,786.2	39.6	2,725.5	4,511.7
PERSONS											
1966	....	....	429.4	4,380.2	4,809.6	67.6	1.4	4,877.2	59.6	3,307.3	8,184.5
1967	....	....	431.0	4,498.7	4,929.7	73.8	1.5	5,003.4	59.8	3,357.1	8,360.5
1968	....	....	430.3	4,615.8	5,046.1	72.7	1.4	5,118.8	59.8	3,439.0	8,557.8
1969	....	....	443.4	4,777.4	5,220.7	86.6	1.6	5,307.3	60.6	3,452.5	8,759.8
1970	....	....	441.4	4,947.1	5,388.5	75.9	1.4	5,464.4	61.0	3,493.7	8,958.1

(a) See letterpress *Population Coverage* preceding table.

(b) See letterpress *Classification of the Labour Force* below.

(c) Proportion of civilian population aged 15 years and over, i.e. labour force participation rate.

(d) Comprises the categories *Never married; widowed; and divorced.*

**Classification of the Labour Force.** The labour force category to which a person is assigned depends on his actual activity (i.e. whether working, looking for work, etc.) during a specified week, known as 'survey week', which is the week immediately preceding that in which the interview takes place. The principal categories are as described below.

*Employed persons* comprise all those who, during survey week, (a) did any work for pay, profit, commission or payment in kind, in a job or business, or on a farm (including

employees, employers and self-employed persons), or (b) worked fifteen hours or more without pay in a family business (or farm), or (c) had a job, business or farm, but were not at work because of illness, accident, leave, holiday or industrial dispute; or because of production hold-up due to bad weather, plant breakdown, etc.

A person who had a job but was temporarily laid off by his employer for the whole week without pay is excluded, and is classified in the tables as unemployed. A person who did some work during the week, however, before he either lost his job or was laid off, is classified as employed. A person who held more than one job is counted only once, in the job at which he worked most hours during survey week.

*Unemployed persons* comprise all those who, during survey week, did no work at all, and who either (a) did not have a job or business and were actively looking for work (including those who stated that they would have looked for work if they had not been temporarily ill or believed no work was available, or had not already made definite arrangements to start work in a new job after survey week), or (b) were laid off from their jobs without pay for the whole week.

A person who either lost his job or was laid off in the course of survey week, but did some work at his job during that week, is classified as employed.

The *labour force* comprises all persons who, during survey week, were found to be 'employed' or 'unemployed' in accordance with the above criteria.

*Persons not in the labour force* are all those who, during survey week, were not in the categories 'employed' or 'unemployed'. This category therefore includes persons without a job, business or farm who were not actively looking for work, and who, during survey week, were either keeping house (unpaid), attending school, university, etc., retired or voluntarily idle, permanently unable to work or inmates of institutions. A person who worked less than fifteen hours without pay in a family business during survey week is also classified as not in the labour force.

### ESTIMATES OF EMPLOYMENT

In addition to employment data provided by the census and the labour force survey, there are available monthly estimates of the number of wage and salary earners in civilian employment.

The figures shown in the next table are part of a new series based on employment data derived from the Population Census of 30 June 1966 and are therefore not comparable with estimates contained in earlier issues of the Year Book. The statistics have been taken from publications issued by the Commonwealth Statistician, Canberra, which give detailed particulars for each of the Australian States. Figures for the period from June 1966 to June 1969 appear in *Employed Wage and Salary Earners: June 1966 to June 1969*, and those for later months in the monthly release *Employment and Unemployment*.

The statistics shown for June 1966 are referred to as 'benchmarks'. For the period from July 1966 the figures shown are estimates designed to measure month-to-month changes in the sector of employment to which the benchmarks relate.

Between population censuses the employment data are obtained from three main sources: (i) current Pay-roll Tax returns, which are lodged by all employers paying more than \$400 per week in wages, other than those specifically exempted under the *Pay-roll Tax Assessment Act 1941-1969*; (ii) current returns from government bodies; and (iii) some other current returns of employment (e.g. for hospitals). The balance, i.e. unrecorded private employment, is estimated.

The figures relate only to civilian wage and salary earners, not to the total labour force. They therefore exclude employers, self-employed persons, unpaid helpers and members of the defence forces. Employees in agriculture and in private domestic service are not included in the estimates because the available data are inadequate.

The new series of estimates are generally at higher levels than the old, for two reasons: (a) the adoption of a new definition of the labour force in the 1966 Population Census, from which the benchmarks for the new series were derived and (b) the inclusion of full-blood Aborigines. The new definition resulted in the inclusion of a considerable number of part-time employees (mostly females) who had previously been excluded.

**WAGE AND SALARY EARNERS IN CIVILIAN EMPLOYMENT—INDUSTRY GROUPS**  
(Excluding defence forces and employees in agriculture and private domestic service)  
(Thousands)

Industry group and sub-group	1966		1967		1968		1969		1970
	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June
<b>MALES</b>									
Forestry, fishing and trapping .....	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.5
Mining and quarrying .....	7.5	7.9	7.9	8.3	8.4	9.1	9.9	10.8	11.7
Manufacturing .....	49.3	50.4	50.5	52.5	53.8	54.7	55.7	56.5	56.2
Electricity, gas, water and sanitary services .....	5.5	5.7	5.9	5.8	6.0	6.0	6.1	6.4	6.7
Building and construction .....	26.8	24.8	24.9	26.2	28.8	28.9	29.7	30.5	30.9
Transport and storage—									
Road transport and storage .....	6.4	6.7	6.7	7.1	7.4	7.7	7.8	8.3	8.8
Shipping and stevedoring .....	4.5	4.6	4.5	4.5	4.6	4.6	4.7	4.6	4.3
Rail and air transport .....	7.8	7.9	7.9	8.0	8.1	8.0	7.9	7.7	7.8
Communication .....	5.7	6.7	6.1	7.0	6.4	7.3	6.8	7.9	7.2
Finance and property—									
Banking .....	3.4	3.4	3.6	3.6	3.7	3.6	3.9	3.8	4.1
Other .....	3.1	3.2	3.3	3.4	3.7	3.9	4.2	4.4	4.5
Commerce—									
Retail trade .....	13.1	13.3	13.2	13.7	13.8	14.2	14.1	15.2	15.1
Wholesale and other commerce .....	16.4	17.6	16.8	18.3	17.5	19.0	17.9	18.8	18.3
Public authority activities, n.e.i. ....	8.6	9.0	9.2	9.4	9.6	9.8	10.1	10.3	10.8
Other industries—									
Health, hospitals, etc. ....	3.4	3.4	3.5	3.5	3.6	3.6	3.7	3.8	3.8
Education .....	6.3	6.2	6.6	6.4	7.2	6.8	7.3	7.0	7.7
Other (a) .....	11.5	12.2	12.2	12.7	13.0	14.3	15.0	16.0	16.8
<b>Total</b> .....	<b>181.0</b>	<b>184.5</b>	<b>184.2</b>	<b>192.1</b>	<b>197.0</b>	<b>203.2</b>	<b>206.4</b>	<b>213.6</b>	<b>216.2</b>
<b>FEMALES</b>									
Forestry, fishing and trapping .....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mining and quarrying .....	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.8	0.9
Manufacturing .....	9.9	10.3	10.5	11.1	11.4	11.9	12.3	12.9	13.2
Electricity, gas, water and sanitary services .....	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Building and construction .....	0.9	0.9	1.0	1.1	1.3	1.4	1.5	1.6	1.7
Transport and storage—									
Road transport and storage .....	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8
Shipping and stevedoring .....	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Rail and air transport .....	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7
Communication .....	1.3	1.4	1.5	1.5	1.6	1.7	1.7	1.9	2.0
Finance and property—									
Banking .....	1.7	1.8	1.8	1.8	2.0	2.0	2.3	2.3	2.7
Other .....	2.6	2.6	2.7	2.8	3.0	3.2	3.5	3.8	4.1
Commerce—									
Retail trade .....	15.8	17.3	17.5	18.8	18.8	19.9	19.7	22.0	20.7
Wholesale and other commerce .....	5.5	5.5	5.8	5.9	6.3	6.5	6.8	7.0	7.2
Public authority activities, n.e.i. ....	3.0	3.1	3.3	3.4	3.5	3.7	4.0	4.2	4.4
Other industries—									
Health, hospitals, etc. ....	12.2	12.5	12.7	12.8	13.4	13.5	14.7	15.1	15.8
Education .....	7.9	6.2	8.6	6.8	9.2	7.6	10.2	8.6	11.7
Other (a) .....	13.3	14.1	14.8	15.6	16.3	17.3	17.8	19.4	20.7
<b>Total</b> .....	<b>76.3</b>	<b>78.0</b>	<b>82.3</b>	<b>84.1</b>	<b>89.3</b>	<b>91.2</b>	<b>97.3</b>	<b>101.9</b>	<b>107.5</b>
<b>PERSONS</b>									
Forestry, fishing and trapping .....	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.6
Mining and quarrying .....	7.8	8.2	8.3	8.7	8.9	9.6	10.5	11.6	12.6
Manufacturing .....	59.2	60.7	61.0	63.6	65.2	66.6	68.0	69.4	69.3
Electricity, gas, water and sanitary services .....	5.8	6.1	6.3	6.2	6.4	6.4	6.5	6.8	7.2
Building and construction .....	27.7	25.7	25.9	27.3	30.1	30.3	31.2	32.1	32.6
Transport and storage—									
Road transport and storage .....	7.0	7.3	7.3	7.8	8.1	8.4	8.6	9.0	9.6
Shipping and stevedoring .....	4.8	4.9	4.8	4.8	4.9	4.9	5.0	4.9	4.6
Rail and air transport .....	8.3	8.4	8.5	8.6	8.7	8.6	8.5	8.4	8.5
Communication .....	7.0	8.1	7.6	8.5	8.0	9.0	8.5	9.9	9.2
Finance and property—									
Banking .....	5.1	5.2	5.4	5.4	5.7	5.6	6.2	6.1	6.8
Other .....	5.7	5.8	6.0	6.2	6.7	7.1	7.7	8.2	8.6
Commerce—									
Retail trade .....	28.9	30.6	30.7	32.5	32.6	34.1	33.8	37.2	35.9
Wholesale and other commerce .....	21.9	23.1	22.6	24.2	23.8	25.5	24.7	25.9	25.5
Public authority activities, n.e.i. ....	11.6	12.1	12.5	12.8	13.1	13.5	14.1	14.5	15.3
Other industries—									
Health, hospitals, etc. ....	15.6	15.9	16.2	16.3	17.0	17.1	18.4	18.9	19.6
Education .....	14.2	12.4	15.2	13.2	16.4	14.4	17.5	15.6	19.4
Other (a) .....	24.8	26.3	27.0	28.3	29.3	31.6	32.8	35.5	37.5
<b>Total</b> .....	<b>257.3</b>	<b>262.5</b>	<b>266.5</b>	<b>276.2</b>	<b>286.3</b>	<b>294.4</b>	<b>303.7</b>	<b>315.5</b>	<b>323.7</b>

(a) See letterpress on page 512.

The benchmark figures were derived from particulars recorded for individuals on population census schedules, while the estimated monthly changes are derived mainly from reports supplied by employers, relating to enterprises or establishments. Because the two sources differ in some cases in the reporting of industry, the industry dissection of the census totals has been adjusted to conform as closely as possible to an establishment reporting basis. The industry classification used in preparing the estimates is that of the Population Census of 30 June 1966.

Current data supplied by reporting enterprises or establishments generally refer to persons on the pay-roll for the last pay-period in each month. Persons who are on paid leave or who work during part of the pay-period and are unemployed or on strike during the rest of the period are generally counted as employed. Those not shown on employers' pay-rolls because they are on leave without pay, on strike or stood down for the entire period are excluded.

Particulars of employment obtained from other collections, such as the annual manufacturing census and periodic censuses and sample surveys of retail establishments, are used to check and, where desirable, to revise estimates in relevant sections. For this reason some of the figures in the previous table are subject to revision as the results of later censuses and surveys become available.

The table on page 511 shows the number of wage and salary earners in civilian employment in Western Australia in various industry groups and sub-groups. The figures appearing against the item 'Other' under the heading 'Other Industries' comprise employees in the Industry Sub-groups *Law, Order and Public Safety; Religion and Social Welfare; Other Community and Business Services; Amusement, Sport and Recreation; Hotels, Boarding Houses and other Accommodation, and Restaurants; and Other Personal Services.*

Employees of government and semi-government authorities are included in the figures shown in the table on page 511. Estimates of the numbers employed by Commonwealth, State and local government authorities are available separately. They include not only those engaged in administrative activities but also employees on services such as railways, road transport, air transport, shipping, education, health, hospitals and institutions, migrant hostels, banks, post office, broadcasting and television, police, factories, electricity generation and supply, water conservation, irrigation, road and bridge construction, harbour works and other public works. In the following table, government employment so defined is shown for the months of June and December in the period from June 1966 to June 1970. The estimates are part of a new series commencing with the month of June 1966 and are not comparable with those published in earlier issues of the Year Book.

GOVERNMENT AUTHORITIES—CIVILIAN EMPLOYEES IN WESTERN AUSTRALIA (a)  
(Thousands)

Month	Commonwealth (b)			State (b) (c)			Local government (c)			Total		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
1966—												
June ....	11.6	3.3	14.9	42.3	11.9	54.2	4.7	0.6	5.3	58.6	15.8	74.3
Dec. ....	12.8	3.4	16.2	42.5	10.7	53.2	4.8	0.6	5.4	60.1	14.7	74.9
1967—												
June ....	12.4	3.5	15.9	42.6	12.8	55.3	4.9	0.6	5.6	59.9	16.9	76.8
Dec. ....	13.4	3.7	17.1	42.5	11.6	54.1	5.1	0.7	5.7	61.0	15.9	76.9
1968—												
June ....	13.2	3.8	17.0	43.9	13.7	57.6	5.2	0.8	5.9	62.3	18.3	80.6
Dec. ....	13.9	4.0	17.9	44.1	12.5	56.7	5.3	0.8	6.1	63.4	17.3	80.7
1969—												
June ....	13.6	4.2	17.9	45.0	15.3	60.2	5.4	0.9	6.3	64.0	20.4	84.4
Dec. ....	14.8	4.5	19.3	44.8	14.5	59.3	5.7	1.0	6.6	65.2	20.0	85.2
1970—												
June ....	14.3	4.7	19.0	45.9	17.1	63.1	5.7	1.0	6.7	65.9	22.8	88.8

(a) Included in the figures shown in the table on page 511.  
c) Excludes a small number of employees engaged in agriculture.

(b) Includes employees of semi-government authorities.

## UNEMPLOYMENT

A full count of unemployed persons in Western Australia is available only from population censuses. At the post-war censuses details have been obtained of all persons usually engaged in an industry, business, profession, trade or service but who were without employment at the time of the census, irrespective of whether they were actively seeking employment or not. At the 1966 Census, 2,938 males and 2,064 females were classified as being without employment. This was equivalent to 1.47 per cent of the total work force. Numbers of males and females unemployed in each of the Australian States and Territories and Australia as a whole are given in the table on page 501.

## Department of Labour and National Service

Monthly figures compiled by the Department of Labour and National Service from the operations of the Commonwealth Employment Service provide indicators of movement in the level of unemployment.

The department makes a count of the number of persons, registered with the Employment Service for employment on the Friday nearest to the end of the month, who claimed at the time of registering that they were not employed, and who were still recorded as unplaced. Included in the figures are persons who have been referred to employers and those who may have obtained employment without notifying the department. Also available from the Department of Labour and National Service is the number of vacancies, registered by employers, which were recorded as unfilled at the end of the month.

## UNEMPLOYED PERSONS AND UNFILLED VACANCIES CLASSIFIED ACCORDING TO OCCUPATIONAL GROUP

Occupational group	At end of June (a)—								
	1968			1969			1970		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
UNEMPLOYED PERSONS (b) (c)									
Rural .....	174	1	175	146	1	147	230	3	233
Professional and semi-professional .....	21	49	70	7	36	43	19	39	58
Clerical and administrative .....	249	893	1,142	237	981	1,218	303	859	1,162
Skilled building and construction .....	121	....	121	87	....	87	355	....	355
Skilled metal and electrical .....	164	1	165	217	....	217	228	....	228
Other skilled (d) .....	41	8	49	33	5	38	64	8	72
Semi-skilled .....	719	225	944	614	236	850	824	252	1,076
Unskilled manual.....	815	....	815	776	2	778	1,271	5	1,276
Service occupations (e) .....	179	491	670	167	462	629	182	505	687
Total .....	2,483	1,668	4,151	2,284	1,723	4,007	3,476	1,671	5,147
UNFILLED VACANCIES (f)									
Rural .....	38	....	38	64	2	66	50	1	51
Professional and semi-professional .....	75	134	209	129	196	325	150	240	390
Clerical and administrative .....	211	200	411	289	273	562	223	330	553
Skilled building and construction .....	207	....	207	285	....	285	101	....	101
Skilled metal and electrical .....	366	....	366	620	2	622	544	1	545
Other skilled (d) .....	200	10	210	273	11	284	226	12	238
Semi-skilled .....	595	90	685	846	130	976	602	165	767
Unskilled manual.....	192	8	200	338	3	341	186	10	196
Service occupations (e) .....	126	178	304	111	214	325	59	306	365
Total .....	2,010	620	2,630	2,955	831	3,786	2,141	1,065	3,206

(a) At the Friday nearest to the end of June. (b) Persons who claimed when registering with the Commonwealth Employment Service that they were not employed and who were recorded as unplaced. Includes those referred to employers and those who may have obtained employment without notifying the Commonwealth Employment Service. Includes also persons receiving unemployment benefit. (c) Includes persons seeking apprenticeships, cadetships and other forms of training. (d) Includes skilled workers in mining and in the following trades: stone, glass, chemicals, leather, rubber, clothing, textiles, footwear, food, drink, tobacco, wood, furnishing, paper and printing. (e) Includes hairdressers; private domestic, hotel and guest-house workers; caretakers and cleaners; and protective service occupations. (f) Includes apprenticeships, cadetships and other forms of training.

The previous table gives a classification according to occupational group of unemployed persons and unfilled vacancies in Western Australia at the end of June of the years 1968 to 1970. The figures are taken from the *Monthly Review of the Employment Situation*, which is published by the Department of Labour and National Service and contains similar statistics, together with additional information, for each of the Australian States and for Australia as a whole.

Applications for unemployment benefit are received by the Department of Labour and National Service acting on behalf of the Department of Social Services. Persons seeking unemployment benefit must register with the Commonwealth Employment Service (see page 515), which is responsible for certifying that suitable employment is not available before benefits can be paid. Statistics of the number of persons receiving unemployment benefits are given on page 237.

### Labour Force Survey

One of the primary functions of the labour force survey (see pages 508-10) is to provide regular and detailed information on unemployment in Australia. The results of the survey are published for Australia *as a whole*, and separate particulars for Western Australia are not available.

In the following table, details of persons classified as unemployed during the survey week in November of each of the five years to 1970 are shown according to duration of unemployment.

UNEMPLOYED PERSONS (a) ACCORDING TO DURATION OF UNEMPLOYMENT  
AUSTRALIA  
(<sup>000</sup>)

November—	Unemployed persons			Duration of unemployment (weeks) (b)				Persons looking for—	
	Aged 15 and under 20 years	Aged 20 years and over	Total	Under 2	2 and under 4	4 and under 13	13 and over	Full-time work (c)	Part-time work (d)
MALES									
1966	10.9	21.4	32.3	11.2	8.5	5.6	7.1	(f) 32.3	
1967	13.5	21.8	35.3	8.6	14.0	8.4	4.3	(f) 35.3	
1968	14.9	20.3	35.2	10.5	12.6	9.2	(e)	(f) 35.2	
1969	18.8	24.5	43.3	16.0	13.6	9.3	4.3	(f) 43.3	
1970	18.2	21.1	39.3	14.6	13.2	9.1	(e)	(f) 39.3	
FEMALES									
1966	17.3	17.9	35.2	10.7	8.7	7.4	8.4	26.6	8.7
1967	17.5	21.0	38.5	10.4	10.4	12.4	5.3	29.6	8.9
1968	17.4	20.1	37.5	10.1	11.5	9.3	6.7	27.6	9.9
1969	18.7	24.5	43.2	15.6	11.5	9.6	6.5	30.8	12.4
1970	15.1	21.5	36.6	10.5	12.1	9.5	4.4	25.1	11.5
PERSONS									
1966	28.2	39.4	67.6	21.9	17.2	13.0	15.5	56.0	11.6
1967	31.0	42.8	73.8	19.0	24.4	20.8	9.6	62.4	11.4
1968	32.3	40.4	72.7	20.6	24.1	18.5	9.5	58.5	14.2
1969	37.5	49.0	86.5	31.6	25.1	18.9	10.9	69.5	16.9
1970	33.3	42.5	75.9	25.1	25.3	18.6	6.8	60.2	15.6

(a) Civilians aged 15 years and over. See Letterpress *Labour Force Survey* on pages 508-10. (b) Period from the time the person began looking for work, or was laid off, to the end of survey week. (c) Includes persons laid off from full-time jobs. (d) Includes persons laid off from part-time jobs. (e) Less than 4,000; number not capable of more precise estimation within acceptable limits of the standard error of the sample. (f) Separate figures for those seeking full-time work or part-time work are not available within acceptable limits of the standard error of the sample.

Persons unemployed during November, 1970, are classified in the next table according to age group.

UNEMPLOYED PERSONS (a) ACCORDING TO AGE—AUSTRALIA  
NOVEMBER 1970

Age group (years)	Number unemployed ('000)			Per cent of labour force (b)		
	Males	Females	Persons	Males	Females	Persons
15-19 ....	18.2	15.1	33.3	5.6	4.9	5.2
20-24 ....	6.3	5.5	11.8	1.3	1.7	1.4
25-34 ....	4.6	5.7	10.2	0.5	1.6	0.9
35-44 ....	(c)	5.5	8.6	(d)	1.6	0.8
45-54 ....	(c)	(c)	6.6	(d)	(d)	0.7
55 and over ....	(c)	(c)	5.3	(d)	(d)	0.7
Total ....	39.3	36.6	75.9	1.1	2.0	1.4

(a) Civilians aged 15 years and over. See letterpress *Labour Force Survey* on pages 508-10. (b) Number unemployed in each group as a percentage of the civilian labour force in the same group. (c) Less than 4,000; number not capable of more precise estimation within acceptable limits of the standard error of the sample. (d) Not calculated; see note (c).

### COMMONWEALTH EMPLOYMENT SERVICE

The Commonwealth Employment Service is established under the provisions of the *Re-establishment and Employment Act 1945-1966*. The main functions of the Service are to assist people seeking employment to obtain positions best suited to their training, experience, abilities and qualifications, and to assist employers seeking labour to obtain employees best suited to the kinds of work being offered.

Specialised facilities are provided for young people; persons with physical and mental handicaps; former members of the defence forces; migrants; rural workers; and persons with professional and technical qualifications. Vocational guidance is provided without charge by a staff of qualified psychologists. Guidance is available to any person, but is provided particularly for young people, ex-servicemen and the physically handicapped.

The Commonwealth Employment Service is responsible for placing in employment migrant workers sponsored by the Commonwealth under migration schemes. This function includes arranging for them to move to their initial employment and for their admission, if necessary, to Commonwealth migrant hostels. Experts for overseas service under technical aid programmes are recruited by the Employment Service.

In association with placement activities, regular surveys of the labour market are carried out, and detailed information is supplied to interested Commonwealth and State Government departments and instrumentalities and to the public. Employers, employees and other interested persons are advised on labour availability and employment opportunities in various occupations and areas and on other matters concerning employment.

In Western Australia at 31 December 1970 the Commonwealth Employment Service operated five offices in Perth and suburbs, and there were offices at Albany, Bunbury, Collie, Esperance, Geraldton, Kalgoorlie, Manjimup, Medina, Merredin, Northam and Port Hedland. The Service has a Higher Appointments Office in Perth, which deals with the placement of the more highly qualified and professional applicants.

## *Chapter X—continued*

### **Part 3—Prices**

#### RETAIL PRICES AND PRICE INDEXES

Prices of a limited range of commodities are recorded in the Blue Books of Western Australia from the early years of settlement. Retail prices of food and groceries and average rentals of houses for years extending back to 1901 have been collected by the Commonwealth Statistician, but it was not until 1911 that a systematic collection of retail price statistics was begun. These statistics were used to compile the 'A' Series Index, which covered food, groceries and house rents and was first compiled in 1912 with the year 1911 as base = 1,000. Four other indexes covering a wider range of commodities and services were compiled by the Commonwealth Statistician at different times before the current Consumer Price Index was introduced in 1960 (retrospectively to the September quarter of 1948).

Retail price indexes aim to measure the changes which occur in the general level of prices in a selected field. The basic principle of a price index is to select commodities and services representative of the field to be covered, and to combine their prices at regular intervals by the use of 'weights' which represent the relative importance of the several commodities and services in the selected field taken as a whole.

Information concerning retail price indexes and their development in Australia is given in the *Official Year Book of the Commonwealth of Australia* and the *Labour Report*, published by the Commonwealth Statistician, Canberra.

**The Consumer Price Index.** The purpose of the Consumer Price Index is to measure quarterly variations in retail prices of goods and services representing a high proportion of the expenditures of wage-earner households. The weighting pattern relates to estimated aggregates of household expenditures and not to estimated expenditures of an 'average' or individual household of specified size, type, or mode of living.

The index covers a wide range of commodities and services arranged in five major groups, comprising Food; Clothing and Drapery; Housing; Household Supplies and Equipment; and Miscellaneous. With certain exceptions, the weights for individual items comprising these groups are derived from estimates of average household consumption or expenditure for the community as a whole.

The Consumer Price Index is designed essentially to measure the proportionate change in prices as combined in the individual groups, and more particularly, the total of the groups. Consumer (retail) price indexes are sometimes loosely called 'cost of living indexes' and are thought to measure changes in the 'cost of living'. While they may be used as indicating proportional variations in cost of a constant standard of living, they do not measure the absolute cost of any standard of living, nor the absolute cost of changes in the standard of living. The change in prices of goods and services is nevertheless a very important part of the change in the cost of living and this part is measured by consumer (retail) price indexes.

The incidence and frequency of changes in the pattern of household expenditure since 1950 have been such as to make it necessary to construct not one but a series of new indexes introducing additional items and changes in weighting patterns at short intervals. The Consumer Price Index therefore consists of a sequence of short-term retail price indexes linked to form one continuous series. At times of linking, the weighting pattern was altered and new items which had become significant in household expenditure were introduced. In each period between links the items and weighting remained unchanged.



The most recent link in the series was made as at the December quarter of 1968. The weighting of this sixth linked index has been derived from analyses of data from the 1966 Census of Population and Housing, from recent statistics and estimates of production and consumption, and from several special-purpose sample surveys. Weights of all items have been reviewed and are, in general, now based on the pattern of consumption of the years 1962-63 to 1966-67. Further information is contained in the mimeographed release *Consumer Price Index—March Quarter 1969* issued by the Commonwealth Statistician, Canberra.

When the latest link was effected, the reference base year of the index was changed from 1952-53 = 100.0 to 1966-67 = 100.0. All Consumer Price Index numbers which had previously been published on the 1952-53 reference base were recalculated on the new 1966-67 reference base and are available for each quarter and each year from the September quarter of 1948. Index numbers for past periods show exactly the same percentage movements on either reference base, apart from some slight differences caused by rounding.

The Consumer Price Index is compiled for each of the six State capital cities and for Canberra. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in the degree of price movement, but not as to differences in the price level.

In tables dealing with the Consumer Price Index, the figures appearing after the decimal point have little significance for general statistical purposes. They are inserted to avoid distortions that would occur in rounding off the figures to the nearest whole number.

The following table shows the several group index numbers and the 'All groups' index numbers, for Perth and for the six State capital cities combined, for selected years during the period 1948-49 to 1969-70.

CONSUMER PRICE INDEX  
(Base of *each* Index: Year 1966-67 = 100.0)

Year	Group index numbers					Combined index (All groups)	
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous		
PERTH							
1948-49	....	38.4	50.6	36.1	60.4	45.4	44.0
1953-54	....	74.0	84.8	62.0	92.7	66.8	74.6
1958-59	....	80.3	90.8	75.0	96.3	79.6	83.2
1963-64	....	87.4	95.7	89.8	95.7	86.2	89.8
1965-66	....	95.2	97.9	95.4	98.3	95.3	96.1
1966-67	....	100.0	100.0	100.0	100.0	100.0	100.0
1967-68	....	102.9	102.1	105.8	100.7	103.2	102.9
1968-69	....	104.5	104.5	112.7	102.1	105.6	105.5
1969-70	....	108.1	107.8	120.1	103.7	109.8	109.4
SIX STATE CAPITAL CITIES COMBINED (a)							
1948-49	....	38.2	48.9	40.5	58.3	44.7	43.9
1953-54	....	73.2	84.3	58.5	88.3	67.1	73.5
1958-59	....	81.6	90.5	72.9	94.4	81.4	83.6
1963-64	....	89.0	95.3	89.1	96.4	87.3	90.6
1965-66	....	98.4	97.9	95.9	98.9	95.8	97.4
1966-67	....	100.0	100.0	100.0	100.0	100.0	100.0
1967-68	....	104.7	102.2	104.5	101.2	102.8	103.3
1968-69	....	105.8	104.3	109.1	102.9	107.5	106.0
1969-70	....	108.1	107.5	115.5	104.1	111.6	109.4

(a) Weighted average.

The following table shows the 'All groups' index numbers for the six State capital cities, separately and combined, for selected years during the period 1948-49 to 1969-70.

**CONSUMER PRICE INDEX—'ALL GROUPS' INDEX NUMBERS  
SIX STATE CAPITAL CITIES, SEPARATELY AND COMBINED**

(Base of *each* Index: Year 1966-67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

Year	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six State capital cities
1948-49	44·4	43·3	43·1	45·0	44·0	43·0	43·9
1953-54	74·5	72·5	70·9	74·7	74·6	74·4	73·5
1958-59	84·6	82·9	82·1	83·6	83·2	84·1	83·6
1963-64	91·4	90·4	89·6	90·2	89·8	91·7	90·6
1965-66	97·7	97·5	97·5	97·0	96·1	98·0	97·4
1966-67	100·0	100·0	100·0	100·0	100·0	100·0	100·0
1967-68	103·2	103·7	103·3	102·9	102·9	104·6	103·3
1968-69	106·2	106·2	105·5	105·3	105·5	106·1	106·0
1969-70	110·6	108·7	108·4	108·2	109·4	108·5	109·4

**Retail Price Index Numbers, 1901 to 1970.** The index numbers shown in the following table are presented as a continuous series, but they give only a broad indication of long-term trends in retail price levels. They are derived by linking a number of indexes that differ greatly in scope. The successive indexes used are: from 1901 to 1914, the 'A' Series Retail Price Index; from 1914 to 1946-47, the 'C' Series Retail Price Index; from 1946-47 to 1948-49, a composite of Consumer Price Index Housing Group (partly estimated) and 'C' Series Index excluding Rent; from 1948-49 to 1970, the Consumer Price Index.

**RETAIL PRICE INDEX NUMBERS, 1901 TO 1970**

**SIX STATE CAPITAL CITIES COMBINED**

(Base: Year 1911 = 100)

Year	Index number	Year	Index number	Year	Index number
1901	88	1925	165	1949	240
1902	93	1926	168	1950	262
1903	91	1927	166	1951	313
1904	86	1928	167	1952	367
1905	90	1929	171	1953	383
1906	90	1930	162	1954	386
1907	90	1931	145	1955	394
1908	95	1932	138	1956	419
1909	95	1933	133	1957	429
1910	97	1934	136	1958	435
1911	100	1935	138	1959	443
1912	110	1936	141	1960	459
1913	110	1937	145	1961	471
1914 (a)	114	1938	149	1962	469
1915 (a)	130	1939	153	1963	472
1916 (a)	132	1940	159	1964	483
1917 (a)	141	1941	167	1965	502
1918 (a)	150	1942	181	1966	517
1919 (a)	170	1943	188	1967	534
1920 (a)	193	1944	187	1968	548
1921 (a)	168	1945	187	1969	564
1922 (a)	162	1946	190	1970	586
1923	166	1947	198		
1924	164	1948	218		

(a) November.

**Retail Prices.** The average retail prices of selected items of food and groceries in Perth are shown in the following table.

AVERAGE RETAIL PRICES OF FOOD AND GROCERIES—PERTH  
(Cents)

Commodity	Unit	1965	1966	1967	1968	1969
<b>GROCERIES</b>						
Bread, ordinary white	2 lb	16.0	17.1	18.1	19.0	19.8
Flour, plain, prepacked	"	12.7	13.4	14.1	15.3	16.0
" self-raising	"	17.1	17.6	18.3	18.6	19.6
Tea	$\frac{1}{2}$ lb	30.5	30.6	30.7	30.6	29.5
Sugar (a)	lb	8.8	8.7	9.4	10.2	10.1
Rice	1 lb pkt	13.2	13.2	13.8	14.5	15.0
Jam, plum	$\frac{1}{2}$ lb tin	26.6	27.0	28.0	29.4	30.9
Oats, rolled (a)	$\frac{1}{2}$ lb pkt	21.8	23.2	23.4	24.1	27.2
Peaches, canned	29 oz	29.3	30.5	31.1	32.5	33.9
Pears, canned	"	29.4	30.5	31.5	32.5	33.8
Potatoes	7 lb	42.3	42.0	42.1	42.6	42.1
Onions, brown	lb	8.3	11.2	8.7	11.1	8.0
Soap, laundry (a)	20 oz pkt	28.3	31.0	31.4	31.9	32.7
<b>DAIRY PRODUCE</b>						
Butter	lb	50.0	50.1	50.0	49.9	52.2
Cheese, processed	$\frac{1}{2}$ lb pkt	22.3	23.4	24.7	24.9	24.8
Eggs, 24 oz	dozen	59.5	63.6	65.5	65.2	66.1
Bacon, rashers, prepacked (a)	$\frac{1}{2}$ lb	37.8	39.9	41.4	43.7	44.2
Milk, evaporated	14 $\frac{1}{2}$ oz tin	n.a.	n.a.	n.a.	n.a.	17.1
" fresh, bottled	quart	18.5	20.0	20.0	20.0	20.0
<b>MEAT</b>						
Beef (fresh)—						
Rib (without bone)	lb	44.4	50.6	53.4	54.0	54.2
Steak, rump	"	71.1	85.1	92.1	96.8	101.2
" T-bone, without fillet	"	n.a.	n.a.	n.a.	n.a.	81.6
" chuck	"	43.0	50.7	54.3	56.0	57.3
Sausages	"	22.3	24.4	24.8	24.3	24.8
Beef (corned)—						
Silverside	"	45.5	51.9	55.4	56.8	58.8
Brisket, rolled	"	33.1	38.4	42.3	44.6	44.6
Mutton (fresh)—						
Leg	"	29.6	31.8	33.2	32.6	31.9
Chops, loin	"	28.1	29.4	30.7	28.5	27.1
" leg	"	28.3	30.1	31.6	31.0	28.9
" forequarter	"	n.a.	n.a.	n.a.	n.a.	23.0
Lamb (fresh)—						
Leg	"	45.1	48.1	50.2	48.4	49.8
Chops, loin	"	47.2	49.3	51.2	48.3	50.1
" leg	"	47.2	49.4	51.4	49.0	50.6
" forequarter	"	n.a.	n.a.	n.a.	n.a.	42.9
Pork (fresh)—						
Leg	"	56.1	58.8	60.2	63.8	64.1
Loin	"	56.2	59.4	61.0	64.4	64.8
Chops	"	*56.5	59.5	61.2	64.3	64.7

n.a. denotes 'not available'.

(a) Series not strictly comparable throughout due to changes in unit or method of packing, necessitating some calculation of imputed prices. \*Revised.

## WHOLESALE PRICE INDEXES OF MATERIALS USED IN BUILDING

**House Building.** The Wholesale Price Index of Materials used in House Building is compiled by the Commonwealth Statistician and was first published in November 1970 (retrospectively to July 1966). Index numbers are produced monthly for each State capital city and for the six State capital cities combined.

The index measures changes in prices of selected materials used in the construction of houses. Its composition is in accordance with the usage of materials in actual houses which were selected as representative for the purpose. The index does not purport to represent buildings of any kind other than houses. The house building construction types included are those which use brick, brick veneer, timber, or asbestos-cement sheeting as the principal material for the outer walls.

The following numbers of items are included in the lists for the respective State capital cities: Melbourne, Adelaide and Hobart, 50; Sydney, 50 (but vinyl floor tiles are not included in the item elsewhere described as 'Ceramic and vinyl floor tiles'); Brisbane, 49 (heating systems not included); and Perth, 51 (building stone and silica-lime bricks included but plaster board not included). In all cases the selection of materials was

based on local usage. Items are combined in eleven groups in addition to the 'All groups' index. Some items carry the weight of similar items not directly priced. They are described in terms of fixed specifications with the aim of recording price changes for representative materials of constant quality.

The reference base of the index is the year 1966-67 = 100·0, the same as that used for the Wholesale Price Index of Materials used in Building other than House Building (see below). The index is a fixed-weights index and is calculated by the method known as 'the weighted arithmetic mean of price relatives'. The items and weights were derived from reported values of each material used in selected representative houses constructed in or about the year 1968-69 in each State capital city. The selection took account, within the four major construction types, of a range of characteristics of these houses, e.g. internal partitions, windows, roofing, etc., as well as whether such things as paths and fences were included in the job.

Data obtained in each State capital city were used to construct for that city its own list of items and its individual weighting pattern. The weighting pattern derived for the weighted average of the six State capital cities is an aggregation of the individual city patterns, the weight given to each item being proportional to its estimated importance in materials usage in houses of the specified types completed in the six capital cities in 1968-69. In that year the four major construction types (*i.e.* brick, brick veneer, timber, asbestos-cement sheeting) constituted more than 99 per cent of all house building (in the six State capital cities) for which indexes have been prepared.

Price series used in the index relate to specified standards of each commodity and are obtained in all State capital cities from representative suppliers of materials used in house building. In the main they are collected as at the mid-point of the month to which the index refers.

The index has been compiled for each month from July 1966 and for the financial years from 1966-67. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

The separate city indexes measure price movements in each State capital city individually. They enable comparisons to be drawn between capitals as to differences in degree of price movement from period to period, but not as to differences in price level.

Further information concerning the method of compiling the index, as well as detailed group index numbers for each State capital city, is given in the monthly publication *Wholesale Price Indexes—Price Index of Materials used in House Building*, first issued on 27 November 1970 by the Commonwealth Statistician, Canberra.

The following table shows the separate group index numbers and the 'All groups' index numbers, for Perth and for the six State capital cities combined, for the years 1966-67 to 1969-70.

WHOLESALE PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING  
GROUP INDEX NUMBERS  
(Base of each Index: Year 1966-67 = 100·0)

Group	Perth				Weighted average of six State capital cities			
	1966-67	1967-68	1968-69	1969-70	1966-67	1967-68	1968-69	1969-70
Concrete mix, cement and sand	100·0	102·3	102·8	105·3	100·0	101·6	103·8	107·1
Cement products	100·0	104·5	106·5	109·1	100·0	102·8	107·0	112·6
Clay bricks, tiles, etc.	100·0	103·5	106·2	111·4	100·0	103·6	107·8	112·4
Timber, board and joinery	100·0	105·8	107·5	111·1	100·0	103·0	108·6	113·5
Steel products	100·0	101·6	106·2	110·8	100·0	101·9	104·8	110·0
Other metal products	100·0	105·3	107·5	118·4	100·0	103·9	106·3	111·8
Plumbing fixtures, etc.	100·0	101·3	102·7	108·1	100·0	101·7	102·0	108·7
Electrical installation materials	100·0	103·3	105·2	115·1	100·0	103·3	105·2	115·8
Installed appliances	100·0	101·4	101·1	102·6	100·0	100·0	99·7	102·2
Plaster and plaster products	100·0	103·0	107·1	109·4	100·0	101·7	103·0	105·1
Miscellaneous materials	100·0	103·5	104·7	107·7	100·0	102·9	104·5	107·4
All groups	100·0	104·0	105·9	110·3	100·0	102·7	106·3	110·9

The following table shows the 'All groups' index numbers, for each State capital city and for the six State capital cities combined, for the years 1966-67 to 1969-70.

WHOLESALE PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING  
'ALL GROUPS' INDEX NUMBERS

(Base of each Index: Year 1966-67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

City	1966-67	1967-68	1968-69	1969-70
Sydney	100·0	103·4	109·3	115·2
Melbourne	100·0	101·3	103·6	107·2
Brisbane	100·0	103·4	105·6	109·4
Adelaide	100·0	102·1	107·0	112·4
Perth	100·0	104·0	105·9	110·3
Hobart	100·0	101·8	104·1	107·7
Weighted average of six State capital cities	100·0	102·7	106·3	110·9

**Other Building.** The Wholesale Price Index of Materials used in Building other than House Building is compiled by the Commonwealth Statistician and was first published in April 1969 (retrospectively to July 1966). Index numbers are produced monthly for each State capital city and for the six State capital cities combined.

The index measures changes in prices of selected materials used in the construction of buildings other than houses and 'low-rise' flats (in general, those up to three storeys). Its composition is in accordance with the materials usage in actual building projects which were selected as representative for the purpose. The building 'use-types' (e.g. office building, factory, etc.) directly represented are 'high-rise' flats (in general, those of more than three storeys); offices; factories; health buildings (i.e. hospitals, nurses' quarters, clinics, etc.); education buildings (i.e. schools, universities, kindergartens, etc.); and commercial premises including hotels, hostels, etc., shops, and other business premises. The index includes seventy-two items, which are combined in eleven groups as shown in the next table.

Although the selected materials (or many of them) are also used in house (and low-rise flat) building, in building repair, maintenance and alteration work, and in 'engineering construction' work (e.g. projects such as roads, dams, bridges and the like), the weighting pattern of the index, being designed for the specific purpose mentioned earlier, is not applicable to these other activities of the Construction industry. In addition, since the weights are based on an average materials usage over the stated range of building use-types, the index is not necessarily applicable to any specific building or any of the separate use-types.

The reference base of the index is the year 1966-67 = 100·0. The index is a fixed-weights index and is calculated by the method known as 'the weighted arithmetic mean of price relatives'. The items and weights were derived from reported values of each material used in selected representative buildings constructed in or about the year 1966-67. The selection took account of building use-type and construction characteristics (e.g. type of frame, wall, floor, etc.) within use-types.

A single weighting pattern, relating to the whole of Australia, is applied (with minor exceptions) to local price measures in calculating indexes for each State capital city. The index for the six State capital cities combined is a weighted average of individual city indexes. The relative weighting of the capitals is in proportion to the estimated value on completion of building other than house building in the separate States during the three years ended June 1967.

Price series used in the index relate to specified standards of each commodity and are obtained in all State capital cities from representative suppliers of materials used in building. In the main they are collected as at the mid-point of the month to which the index refers.

The index has been compiled for each month from July 1966 and for the financial years from 1966-67. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

The separate city indexes measure price movements in each State capital city individually. They enable comparisons to be drawn between capitals as to differences in degree of price movement from period to period, but not as to differences in price level.

Further information concerning the method of compiling the index, as well as detailed group index numbers for each State capital city, is given in the monthly publication *Wholesale Price Indexes—Price Index of Materials used in Building other than House Building*, first issued on 23 April 1969 by the Commonwealth Statistician, Canberra.

The following table shows the separate group index numbers and the 'All groups' index numbers, for Perth and for the six State capital cities combined, for the years 1967-68 to 1969-70.

**WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING  
OTHER THAN HOUSE BUILDING—GROUP INDEX NUMBERS**  
(Base of *each* Index: Year 1966-67 = 100·0)

Group	Perth			Weighted average of six State capital cities		
	1967-68	1968-69	1969-70	1967-68	1968-69	1969-70
Concrete mix, cement, sand, etc. ....	100·6	101·4	102·8	101·5	103·5	106·9
Cement products ....	104·3	108·1	111·3	102·2	106·8	111·7
Bricks, stone, etc. ....	103·0	106·2	111·4	103·7	108·2	112·6
Timber, board and joinery ....	104·1	108·0	111·3	103·0	107·2	111·2
Steel and iron products ....	101·7	104·2	107·1	102·3	106·1	110·1
Aluminium products ....	99·7	101·8	102·6	101·4	103·9	107·4
Other metal products ....	105·7	106·4	127·0	105·9	106·8	126·3
Plumbing fixtures ....	101·7	103·4	110·8	102·8	103·3	113·7
Miscellaneous materials ....	102·7	103·9	107·8	102·3	103·2	105·8
Electrical installation materials (a) ....	100·9	102·1	112·2	100·9	102·1	112·2
Mechanical services components (b) ....	101·4	107·5	111·5	101·4	107·7	111·8
All groups ....	102·0	104·7	108·9	102·2	105·6	110·5

(a) Based on Sydney and Melbourne prices; see letterpress *Electrical Installation Materials* below.

(b) In the main based on Sydney and Melbourne prices.

The following table shows the 'All groups' index numbers, for each State capital city and for the six State capital cities combined, for the years 1966-67 to 1969-70.

**WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING  
OTHER THAN HOUSE BUILDING—'ALL GROUPS' INDEX NUMBERS**  
(Base of *each* Index: Year 1966-67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

City	1966-67	1967-68	1968-69	1969-70
Sydney ....	100·0	102·6	106·5	111·7
Melbourne ....	100·0	101·7	105·0	109·8
Brisbane ....	100·0	102·2	105·1	110·3
Adelaide ....	100·0	101·8	105·0	109·4
Perth ....	100·0	102·0	104·7	108·9
Hobart ....	100·0	102·3	105·1	109·7
Weighted average of six State capital cities	100·0	102·2	105·6	110·5

**Electrical Installation Materials.** The Wholesale Price Index of Electrical Installation Materials is compiled by the Commonwealth Statistician and was first published in November 1964 (retrospectively to 1959-60).

The index measures changes in the aggregate cost of electrical installation materials used in building other than house building. Items in the index have been selected as representative of materials used in buildings such as hospitals, schools, factories and multi-storeyed commercial buildings and flats. These items are divided into three main groups for which separate indexes are compiled, in addition to an 'All groups' index.

The basis of pricing is the price to electrical contractors, delivered on site or into store in the metropolitan areas of Sydney and Melbourne. The price series used relate to specified standards of each commodity and are collected as at the mid-point of the month to which the index relates.

The reference base of the Wholesale Price Index of Electrical Installation Materials is the year 1959-60 = 100·0. In general, the weights used in compiling the index were derived from information relating to the values of materials used in selected representative projects in Sydney and Melbourne during the three years 1960-61 to 1962-63. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

Index numbers are issued monthly by the Commonwealth Statistician, Canberra in the publication *Wholesale Price Indexes—Price Index of Electrical Installation Materials*.

Annual index numbers for each group of items and for 'All groups' are given in the following table.

WHOLESALE PRICE INDEX OF ELECTRICAL INSTALLATION MATERIALS  
GROUP INDEX NUMBERS  
(Base of each Index: Year 1959-60 = 100·0)

Year	Group			All groups
	Conductors	Conduit and accessories	Switch-board and switch-gear material	
1959-60	100·0	100·0	100·0	100·0
1960-61	99·5	102·3	100·9	100·7
1961-62	98·7	102·8	99·8	100·1
1962-63	96·8	103·6	100·5	99·8
1963-64	93·2	103·7	100·8	98·5
1964-65	110·6	104·6	105·2	107·2
1965-66	105·8	104·2	106·6	105·7
1966-67	120·2	105·8	109·2	112·8
1967-68	119·9	106·0	112·5	113·8
1968-69	119·5	107·3	115·3	115·0
1969-70	142·1	109·6	120·1	126·2

## STATISTICAL SUMMARY FROM 1829

In the next nineteen pages, a historical summary of some of the more important statistics relating to Western Australia is shown. This is intended to present a general picture of the development of the State, with details being given (wherever they are available) for the year 1829, for every tenth year in the period 1830-1900, and for each single year from 1907. Figures for the period 1901-1906 have been omitted from the tables in several instances owing to insufficient space. In these cases, the figures are available, if required, from the *Western Australian Year Book*, No. 7—1968 and earlier issues, and the *Statistical Register of Western Australia*.



## ESTIMATED POPULATION, NATURAL INCREASE AND MIGRATION (a)

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to total population, including Aborigines. See also note on page 125.

Year	Population at 31 December			Population increase				Mean population		Population of Perth Statistical Division (f)
	Males	Females	Persons	Recorded natural increase (b)	Estimated net migration (c)	Total increase (d)		Year ended—		
						Number	Per cent (e)	30 June	31 December	
				(g)	(g)	(g)	(g)			(000)
1829 ....	769	234	1,003	(g)	(g)	(g)	(g)		(g)	
1830 ....	877	295	1,172	(g)	(g)	169	16.85		(g)	
1840 ....	1,434	877	2,311	34	123	157	7.29		(g)	
1850 ....	3,576	2,310	5,886	132	1,109	1,241	26.72		(g)	
1860 ....	9,597	5,749	15,346	379	130	509	3.43	(g)	15,092	
1870 ....	15,511	9,624	25,135	475	7	482	1.96		24,894	
1880 ....	16,985	12,576	29,561	551	—	129	1.45		29,350	
1890 ....	28,854	19,648	48,502	1,021	1,821	2,842	6.22		47,081	20
1900 ....	110,088	69,879	179,967	3,214	6,495	9,709	5.70		175,113	73
1907 ....	146,264	108,276	254,540	4,781	5,414	633	0.25	255,840	255,510	105.0
1908 ....	148,447	111,224	259,671	4,876	255	5,131	2.02	255,933	257,822	107.6
1909 ....	151,325	114,350	265,675	4,898	1,106	6,004	2.31	260,355	263,279	110.6
1910 ....	157,971	118,861	276,832	4,845	6,312	11,157	4.20	266,686	271,019	115.7
1911 ....	167,993	125,930	293,923	5,168	11,923	17,091	6.17	278,043	286,712	121.4
1912 ....	173,897	131,724	305,621	5,354	6,344	11,698	3.98	294,364	301,040	126.5
1913 ....	180,534	139,401	319,935	6,284	8,030	14,314	4.68	307,145	313,383	132.9
1914 ....	178,978	143,111	322,089	6,161	4,007	2,154	0.67	319,014	322,668	133.7
1915 ....	170,890	145,773	316,663	6,025	11,451	5,426	1.68	322,996	321,247	133.3
1916 ....	159,237	147,643	306,880	5,478	15,261	9,783	3.09	317,867	313,066	135.6
1917 ....	157,532	149,306	306,838	5,113	5,155	42	0.01	308,756	306,339	142.3
1918 ....	159,865	150,318	310,183	4,273	928	3,345	1.09	306,804	308,198	145.6
1919 ....	174,981	152,879	327,860	3,347	14,330	17,677	5.70	311,835	319,955	155.7
1920 ....	176,895	154,428	331,323	4,761	1,298	3,463	1.06	327,152	330,023	167.0
1921 ....	178,968	157,580	336,548	4,327	898	5,225	1.58	331,973	334,084	171.0
1922 ....	184,471	161,073	345,544	4,964	4,032	8,996	2.67	337,269	341,375	178.1
1923 ....	191,131	165,728	356,859	4,924	6,391	11,315	3.27	345,891	350,772	191.8
1924 ....	197,676	170,648	368,324	5,038	6,427	11,465	3.21	356,751	363,152	199.9
1925 ....	202,554	174,973	377,527	4,870	4,333	9,203	2.50	368,525	372,970	203.0
1926 ....	206,797	178,436	385,233	4,951	2,755	7,706	2.04	376,933	380,930	208.4
1927 ....	215,851	184,046	399,897	5,089	9,575	14,664	3.81	385,780	392,071	216.2
1928 ....	225,072	189,549	414,621	5,064	9,660	14,724	3.68	398,777	407,576	222.4
1929 ....	231,361	195,276	426,637	5,121	6,895	12,016	2.90	414,489	420,756	229.0
1930 ....	232,868	198,742	431,610	5,426	453	4,973	1.17	425,785	429,079	235.1
1931 ....	232,397	201,289	433,686	4,868	2,792	2,076	0.48	431,022	432,347	239.9
1932 ....	233,049	203,271	436,320	4,250	1,616	2,634	0.61	433,596	435,041	238.9
1933 ....	234,744	205,898	440,642	4,084	238	4,322	0.99	436,798	438,780	232.1
1934 ....	236,140	207,589	443,729	3,725	638	3,087	0.70	440,736	442,354	234.3
1935 ....	238,739	210,884	449,623	4,001	1,893	5,894	1.33	444,275	446,874	237.7
1936 ....	240,827	213,373	454,200	4,249	328	4,577	1.02	449,728	452,294	241.0
1937 ....	244,050	216,492	460,542	4,544	1,798	6,342	1.40	454,532	457,328	244.4
1938 ....	246,943	219,741	466,684	4,907	1,235	6,142	1.33	460,642	463,808	247.7
1939 ....	249,065	223,315	472,380	4,696	1,000	5,696	1.22	466,896	469,780	252.2
1940 ....	248,734	225,342	474,076	4,598	2,902	1,696	0.36	472,060	473,397	255.5
1941 ....	246,842	226,371	473,213	4,906	5,769	863	0.18	474,180	473,988	260.0
1942 ....	246,816	229,839	476,655	3,791	349	3,442	0.73	474,833	476,619	265.6
1943 ....	246,389	231,875	478,264	5,137	3,528	1,609	0.34	476,989	476,745	272.3
1944 ....	249,301	235,474	484,775	5,857	654	6,511	1.36	478,271	481,498	281.2
1945 ....	251,590	238,498	490,088	5,418	105	5,313	1.10	484,720	487,510	289.0
1946 ....	255,310	241,663	496,973	7,277	392	6,885	1.40	489,982	492,771	297.9
1947 ....	261,653	247,109	508,762	8,119	3,670	11,789	2.37	497,006	502,951	307.3
1948 ....	268,304	253,695	521,999	8,246	4,991	13,237	2.60	508,747	514,621	315.8
1949 ....	280,273	263,911	544,184	8,721	13,464	22,185	4.25	521,932	532,603	331.4
1950 ....	294,758	277,891	572,649	9,170	19,295	28,465	5.23	545,134	557,878	351.7
1951 ....	304,454	285,885	590,339	9,506	8,184	17,690	3.09	570,346	580,317	362.8
1952 ....	316,700	296,235	612,935	10,204	12,392	22,596	3.83	589,887	600,615	378.1
1953 ....	326,372	305,371	631,743	10,790	8,018	18,808	3.07	611,191	621,034	390.1
1954 ....	334,342	314,365	648,707	10,564	6,400	16,964	2.69	630,705	639,963	402.2
1955 ....	343,838	324,771	668,609	11,244	8,658	19,902	3.07	648,222	657,323	416.8
1956 ....	350,333	330,935	681,268	11,344	1,315	12,659	1.89	666,898	674,459	427.4
1957 ....	356,195	339,039	695,234	11,627	2,339	13,966	2.05	680,949	687,448	438.9
1958 ....	361,441	345,755	707,196	11,177	785	11,962	1.72	693,568	699,915	449.3
1959 ....	366,253	352,438	718,691	11,614	119	11,495	1.63	705,869	711,737	459.5
1960 ....	372,665	358,368	731,033	11,229	1,113	12,342	1.72	717,316	722,900	470.3
1961 ....	384,773	370,440	755,213	11,349	2,571	13,920	1.90	729,770	737,596	482.7
1962 ....	395,891	381,357	777,248	11,254	10,499	22,035	2.92	755,770	766,205	500.3
1963 ....	407,024	391,871	798,895	11,314	10,068	21,647	2.79	777,413	788,457	517.8
1964 ....	417,023	401,098	818,121	10,256	8,705	19,226	2.41	798,824	808,300	534.0
1965 ....	427,330	410,918	838,248	9,912	9,963	20,127	2.46	817,157	826,481	550.9
1966 ....	439,680	423,005	862,685	10,235	14,046	24,437	2.92	837,290	848,837	569.5
1967 ....	454,743	438,020	892,763	11,244	18,834	30,078	3.49	862,130	876,997	591.0
1968 ....	473,779	456,979	930,758	12,073	25,922	37,995	4.26	902,537	910,123	622.5
1969 ....	491,737	475,003	966,740	13,404	22,578	35,982	3.87	928,943	947,203	650.0

(a) Estimates for 1965 and earlier have been adjusted to conform to final census results; those for later years are subject to revision after the 1971 Census. (b) Excess of births over deaths, including deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Interstate and overseas. (d) Minus sign (—) denotes decrease. (e) The rates represent total increase in population during the year expressed as a proportion per cent of the population at the end of the previous year. (f) At 31 December. (g) Not available.

## VITAL STATISTICS

See NOTE at head of previous table.

Year	Marriages registered	Live births registered	Deaths registered (b)	Natural increase (c)	Rate per 1,000 of mean population (a)				Infant mortality	
					Marriages	Births	Deaths (b)	Natural increase (c)	Number (d)	Rate (e)
1840 ....	25	54	20	34	(f)	(f)	(f)	(f)	(f)	(f)
1850 ....	37	186	54	132	(f)	(f)	(f)	(f)	(f)	(f)
1860 ....	151	588	209	379	10·01	38·96	13·85	25·11	(f)	(f)
1870 ....	153	853	378	475	6·15	34·27	15·18	19·08	100	117·2
1880 ....	214	933	382	551	7·29	31·79	13·02	18·77	72	77·2
1890 ....	278	1,561	540	1,021	5·90	33·16	11·47	21·69	140	89·7
1900 ....	1,781	5,454	2,240	3,214	10·17	31·15	12·79	18·35	688	126·2
1907 ....	2,114	7,712	2,931	4,781	8·27	30·18	11·47	18·71	752	97·5
1908 ....	2,012	7,755	2,879	4,876	7·80	30·08	11·17	18·91	657	84·7
1909 ....	1,997	7,602	2,704	4,898	7·59	28·87	10·27	18·60	593	78·0
1910 ....	2,107	7,585	2,740	4,845	7·77	27·99	10·11	17·88	593	78·2
1911 ....	2,421	8,091	2,923	5,168	8·44	28·22	10·19	18·03	615	76·0
1912 ....	2,524	8,689	3,335	5,354	8·38	28·86	11·08	17·78	713	82·1
1913 ....	2,572	9,218	2,934	6,284	8·21	29·41	9·36	20·05	648	70·3
1914 ....	2,660	9,204	3,043	6,161	8·24	28·52	9·43	19·09	627	68·1
1915 ....	2,581	9,017	2,992	6,025	8·03	28·07	9·31	18·76	600	66·5
1916 ....	2,365	8,563	3,085	5,478	7·55	27·35	9·85	17·50	567	66·2
1917 ....	1,621	7,882	2,769	5,113	5·29	25·73	9·04	16·69	450	57·1
1918 ....	1,612	7,106	2,833	4,273	5·23	23·06	9·19	13·87	406	57·1
1919 ....	2,194	6,937	3,590	3,347	6·86	21·68	11·22	10·46	424	61·1
1920 ....	2,932	8,149	3,388	4,761	8·88	24·69	10·27	14·42	538	66·0
1921 ....	2,656	7,807	3,480	4,327	7·95	23·37	10·42	12·95	611	78·3
1922 ....	2,446	8,131	3,167	4,964	7·17	23·82	9·28	14·54	452	55·6
1923 ....	2,376	7,854	2,930	4,924	6·77	22·39	8·35	14·04	442	56·3
1924 ....	2,596	8,301	3,263	5,038	7·15	22·86	8·99	13·87	414	49·9
1925 ....	2,746	8,185	3,315	4,870	7·36	21·95	8·89	13·06	463	56·6
1926 ....	2,844	8,301	3,350	4,951	7·47	21·79	8·79	13·00	409	49·3
1927 ....	3,108	8,482	3,393	5,089	7·93	21·63	8·65	12·98	389	45·9
1928 ....	3,309	8,704	3,640	5,064	8·12	21·36	8·93	12·43	419	48·1
1929 ....	3,367	9,051	3,930	5,121	8·00	21·51	9·34	12·17	508	56·1
1930 ....	3,205	9,200	3,774	5,426	7·47	21·44	8·80	12·64	430	46·7
1931 ....	2,741	8,549	3,681	4,868	6·34	19·77	8·51	11·26	355	41·5
1932 ....	2,904	7,965	3,715	4,250	6·68	18·31	8·54	9·77	355	44·6
1933 ....	3,374	7,874	3,790	4,084	7·69	17·95	8·64	9·31	290	36·8
1934 ....	3,682	7,801	4,076	3,725	8·32	17·64	9·21	8·42	319	40·9
1935 ....	3,940	8,119	4,118	4,001	8·82	18·17	9·22	8·95	326	40·2
1936 ....	4,242	8,479	4,230	4,249	9·38	18·75	9·35	9·39	358	42·2
1937 ....	4,169	8,609	4,065	4,544	9·12	18·82	8·89	9·94	323	37·5
1938 ....	4,153	9,141	4,234	4,907	8·95	19·71	9·13	10·58	309	33·8
1939 ....	4,195	9,036	4,336	4,700	8·93	19·23	9·23	10·00	369	40·8
1940 ....	5,234	9,121	4,486	4,635	11·06	19·27	9·48	9·79	403	44·2
1941 ....	5,077	10,118	4,769	5,349	10·71	21·35	10·06	11·29	357	35·3
1942 ....	5,441	9,901	5,076	4,825	11·42	20·77	10·65	10·12	365	36·9
1943 ....	4,528	10,481	4,587	5,894	9·50	21·98	9·62	12·36	342	32·6
1944 ....	4,506	10,870	4,478	6,392	9·36	22·58	9·30	13·28	354	32·6
1945 ....	3,788	10,672	4,712	5,960	7·77	21·89	9·67	12·23	315	29·5
1946 ....	5,171	12,105	4,753	7,352	10·49	24·57	9·65	14·92	376	31·1
1947 ....	5,282	12,874	4,723	8,151	10·50	25·60	9·39	16·21	398	30·9
1948 ....	5,186	12,931	4,685	8,246	10·08	25·13	9·10	16·02	331	25·6
1949 ....	4,951	13,511	4,790	8,721	9·30	25·37	8·99	16·37	357	26·4
1950 ....	5,434	14,228	5,058	9,170	9·74	25·50	9·07	16·44	386	27·1
1951 ....	5,390	14,794	5,288	9,506	9·29	25·49	9·11	16·38	425	28·7
1952 ....	5,389	15,413	5,209	10,204	8·97	25·66	8·97	16·99	384	24·9
1953 ....	5,032	15,862	5,072	10,790	8·10	25·54	8·17	17·37	378	23·8
1954 ....	5,204	15,928	5,364	10,564	8·13	24·89	8·38	16·51	359	22·5
1955 ....	5,145	16,623	5,379	11,244	7·83	25·29	8·18	17·11	373	22·4
1956 ....	5,080	16,916	5,572	11,344	7·53	25·08	8·26	16·82	384	22·7
1957 ....	4,897	16,924	5,297	11,627	7·12	24·62	7·71	16·91	357	21·1
1958 ....	5,038	16,731	5,554	11,177	7·20	23·90	7·94	15·97	360	21·5
1959 ....	5,387	17,111	5,497	11,614	7·57	24·04	7·72	16·32	345	20·2
1960 ....	5,323	16,926	5,697	11,229	7·36	23·41	7·88	15·53	366	21·6
1961 ....	5,150	17,078	5,729	11,349	6·98	23·15	7·77	15·39	336	19·7
1962 ....	5,466	17,064	5,810	11,254	7·23	22·58	7·69	14·89	380	22·3
1963 ....	5,755	17,290	5,976	11,314	7·40	22·23	7·68	14·55	353	20·4
1964 ....	6,023	16,685	6,429	10,256	7·55	20·93	8·06	12·86	328	19·7
1965 ....	6,448	16,186	6,274	9,912	7·91	19·85	7·70	12·16	351	21·7
1966 ....	7,001	17,007	6,772	10,235	8·36	20·31	8·09	12·22	329	19·3
1967 ....	7,430	18,023	6,779	11,244	8·47	20·55	7·73	12·82	314	17·4
1968 ....	8,086	19,541	7,468	12,073	8·88	21·47	8·21	13·27	398	20·4
1969 ....	8,993	20,754	7,350	13,404	9·49	21·91	7·76	14·15	453	21·8

(a) Rates for 1965 and earlier have been adjusted to conform to final census results; those for later years are subject to revision after the 1971 Census. (b) Excludes deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Excess of *Live births registered* over *Deaths registered*; see also note (b). (d) Deaths under one year of age; included in *Deaths registered*. (e) Per 1,000 live births. (f) Not available.

PUBLIC REVENUE AND EXPENDITURE: CONSOLIDATED REVENUE FUND  
(\$'000)

Year (a)	Revenue					Total revenue	Expenditure					Total expenditure
	Common-wealth funds	Public utilities (b)	Departmental (c)	Taxation	Territorial (d)		Public utilities (b)	Interest and sinking fund (e)	Departmental			
									Educational	Health	Other	
1840	.....	.....	.....	.....	5	34	.....	.....	n.a.	.....	.....	30
1850	.....	.....	.....	.....	4	38	.....	n.a.	n.a.	.....	.....	33
1860	.....	.....	.....	.....	35	140	.....	.....	3	.....	.....	123
1870	n.a.	n.a.	n.a.	n.a.	40	196	n.a.	.....	7	.....	.....	226
1880	.....	.....	.....	.....	72	360	.....	40	19	n.a.	n.a.	409
1890	.....	.....	.....	.....	217	829	.....	144	23	.....	.....	803
1900	.....	2,612	182	244	380	5,751	1,863	880	138	198	2,049	5,231
1907	.....	1,560	3,636	469	532	6,803	2,566	1,730	338	298	1,857	6,980
1908	.....	1,507	3,600	439	555	6,753	2,290	1,819	350	312	1,798	6,758
1909	.....	1,234	3,552	466	593	6,534	2,189	1,900	354	356	1,735	6,737
1910	.....	1,407	3,916	551	673	7,315	2,440	2,006	367	328	1,533	6,895
1911	.....	1,139	4,417	573	650	802	2,704	2,092	404	315	1,713	7,469
1912	.....	1,277	4,477	574	705	772	2,903	2,203	477	367	1,960	8,202
1913	.....	1,271	5,339	712	787	776	9,193	3,594	2,416	553	412	2,047
1914	.....	1,282	5,991	986	772	808	10,411	4,004	2,768	608	449	10,682
1915	.....	1,263	5,513	753	744	793	10,281	3,814	3,093	625	492	11,410
1916	.....	1,232	5,738	854	816	783	10,714	3,951	3,328	635	531	11,410
1917	.....	1,189	5,279	931	805	660	9,154	3,913	3,532	668	561	10,554
1918	.....	1,198	5,255	883	899	632	9,245	3,869	3,750	708	444	10,657
1919	.....	1,171	5,362	962	1,258	690	9,890	4,131	3,946	732	482	11,194
1920	.....	1,197	6,364	1,188	1,688	818	11,727	5,156	4,124	829	1,931	13,063
1921	.....	1,188	7,517	1,618	1,911	875	13,579	6,290	4,459	980	590	14,953
1922	.....	1,168	7,787	1,822	1,762	870	13,814	6,120	4,875	1,112	540	15,278
1923	.....	1,166	8,000	2,092	1,975	807	14,415	5,847	5,150	1,126	538	15,226
1924	.....	1,171	8,776	2,173	2,347	925	15,731	6,065	5,668	1,161	544	16,190
1925	.....	1,176	9,154	2,576	2,448	1,004	16,763	6,195	6,193	1,171	587	16,880
1926	.....	1,177	9,280	2,831	2,836	1,083	17,616	6,577	6,596	1,010	610	17,815
1927	.....	2,306	9,941	3,274	2,423	1,102	19,502	6,958	6,590	1,294	604	19,445
1928	.....	1,618	10,589	3,205	2,593	1,222	19,616	7,467	6,358	1,337	606	19,669
1929	.....	1,623	10,772	3,312	2,740	1,029	19,896	7,885	6,671	1,358	634	20,448
1930	.....	1,547	10,596	3,134	2,906	950	19,501	8,073	6,891	1,385	649	20,537
1931	.....	1,547	9,228	3,279	2,269	678	17,374	6,654	7,243	1,346	486	20,215
1932	.....	1,547	8,818	2,766	2,014	585	16,071	5,724	7,015	1,098	328	19,186
1933	.....	1,947	8,873	2,701	2,257	558	16,664	5,682	7,009	1,108	333	18,392
1934	.....	2,147	8,867	2,240	2,737	626	16,963	5,870	7,095	1,153	309	18,541
1935	.....	2,413	9,837	1,562	3,804	812	18,663	6,391	7,100	1,225	326	18,997
1936	.....	2,617	10,366	1,677	4,372	767	20,067	6,756	7,135	1,331	341	19,891
1937	.....	2,013	10,633	1,727	4,807	773	20,371	7,247	7,237	1,432	381	21,113
1938	.....	2,097	11,148	1,980	5,190	749	21,638	7,249	7,579	1,474	380	21,659
1939	.....	2,087	11,159	1,786	5,728	634	21,899	7,857	7,779	1,514	401	22,340
1940	.....	2,137	11,102	1,942	5,992	632	22,240	7,662	8,021	1,545	416	22,534
1941	.....	2,247	11,366	1,916	6,255	638	22,864	7,534	8,114	1,568	421	22,842
1942	.....	2,207	12,133	2,204	6,222	620	23,880	8,282	8,204	1,662	436	23,877
1943	.....	7,852	13,518	2,497	1,330	634	26,303	9,377	8,183	1,627	458	26,254
1944	.....	7,935	13,626	2,868	1,553	700	27,178	9,870	8,185	1,747	506	27,102
1945	.....	8,044	13,618	3,402	1,715	697	27,908	10,064	8,251	1,778	485	27,899
1946	.....	9,960	13,303	2,519	1,936	709	28,815	10,825	8,168	2,005	1,010	28,815
1947	.....	11,461	11,769	3,105	2,138	1,053	29,962	10,866	8,012	2,447	1,369	30,057
1948	.....	14,515	13,242	3,575	2,354	1,202	35,421	13,996	8,089	3,298	1,841	36,125
1949	.....	17,136	15,032	4,564	2,683	1,106	41,121	16,720	8,215	3,519	2,613	42,756
1950	.....	22,975	17,792	5,733	3,240	1,225	51,622	20,237	8,508	4,160	3,633	51,574
1951	.....	25,343	19,085	5,911	3,912	1,230	56,312	21,974	8,994	5,269	4,465	55,994
1952	.....	29,923	24,335	6,863	4,633	1,300	67,910	27,490	9,741	7,262	6,269	69,094
1953	.....	39,056	22,385	8,557	5,247	1,513	77,768	32,044	10,611	8,886	6,926	78,784
1954	.....	38,342	29,860	8,758	6,468	1,929	86,292	35,234	12,147	9,503	7,675	86,497
1955	.....	38,759	32,645	9,433	7,258	2,014	91,440	36,089	13,857	11,217	8,026	92,408
1956	.....	43,373	33,969	9,779	8,036	2,498	99,225	39,184	15,451	12,482	9,344	102,886
1957	.....	46,759	37,133	12,548	9,027	2,433	108,662	42,022	17,043	13,636	10,067	112,847
1958	.....	51,808	34,525	13,640	10,729	2,516	114,108	40,103	19,303	15,172	11,026	116,355
1959	.....	55,496	36,080	14,522	10,368	2,783	120,136	40,317	20,844	15,819	11,967	123,506
1960	.....	58,871	38,575	15,696	11,834	2,878	128,776	42,418	23,053	17,282	13,565	131,587
1961	.....	65,519	40,830	16,372	12,079	2,797	138,665	41,072	24,628	19,541	15,018	141,075
1962	.....	73,430	42,456	16,549	12,926	3,283	149,852	42,097	27,250	21,417	14,935	151,780
1963	.....	75,847	43,559	18,134	14,762	3,501	157,182	42,267	29,980	22,850	16,073	158,687
1964	.....	78,988	45,376	20,948	17,604	3,751	167,888	44,247	31,771	25,880	18,705	170,681
1965	.....	88,565	39,778	26,712	19,512	4,107	180,143	43,360	34,669	29,133	21,160	184,840
1966	.....	103,459	45,683	28,753	22,574	4,598	206,655	47,106	37,926	34,016	23,086	206,665
1967	.....	106,748	52,787	31,461	27,536	7,655	228,146	53,182	41,662	36,746	26,429	228,174
1968	.....	112,617	56,226	33,135	34,916	11,845	250,738	60,728	43,864	41,224	29,294	249,909
1969	.....	126,621	54,407	33,035	41,602	17,301	275,081	64,016	47,083	46,441	33,613	276,137

n.a. denotes 'not applicable' or 'not available'.

(a) From 1900, year ended 30 June.

(b) Figures for 1964-65 and later exclude particulars of the Metropolitan Water Supply, Sewerage and Drainage Department, which was replaced by a Board from 1 July 1964.

(d) Revenue from sales, leases, licences and royalties relating to land, mining and timber.

on overseas payments.

(c) Reimbursements, fees, etc.

(e) From 1966-67 includes exchange

# NET EXPENDITURE FROM LOAN FUNDS; PUBLIC DEBT (\$'000)

Year (a)	Net expenditure from loan funds on public works and services (b)							Public debt (at end of year)	
	Railways, tramways and omnibuses	Electricity supply	Harbours, rivers, light- houses, etc.	Water supplies, sewerage, drainage and irrigation	Public buildings	Other	Total	Gross amount outstand- ing	Sinking fund
1860	....	....	....	....	....	....	....	4	....
1870	....	....	....	....	....	....	....	....	....
1880	....	(c) 549	(d) 38	....	....	(e) 802	(d) 802	722	(e) 170
1890	....	3	6	2	(f) 76	(e) 32	32	2,735	754
1900	....	302	395	949	....	(e) 110	1,757	23,349	....
1907	....	659	192	183	224	543	1,802	38,445	3,200
1908	....	612	147	256	213	240	1,467	40,987	3,809
1909	....	1,095	162	229	194	343	2,024	43,904	4,467
1910	....	908	174	199	152	626	2,058	46,575	5,139
1911	....	(g) 1,818	(g) 67	(g) 307	(g) 106	(g) 816	(g) 3,114	47,408	5,090
1912	....	2,641	372	250	262	1,095	4,619	52,567	5,837
1913	....	3,988	301	790	140	1,599	6,818	60,553	6,619
1914	....	2,333	180	664	88	2,561	5,826	68,840	7,384
1915	....	1,386	331	496	162	2,668	5,043	74,045	8,138
1916	....	895	218	331	81	1,643	3,169	78,279	9,057
1917	....	675	244	153	47	592	1,710	81,830	10,072
1918	....	416	170	136	35	1,351	2,108	84,608	11,142
1919	....	375	140	93	43	1,448	2,099	87,274	12,278
1920	....	242	204	94	21	4,765	5,327	93,644	13,656
1921	....	398	237	427	50	4,061	5,173	98,079	15,283
1922	....	1,207	183	435	89	2,996	4,910	109,920	16,740
1923	....	1,359	240	402	37	4,740	6,779	116,972	17,562
1924	....	1,303	278	871	177	5,244	7,874	125,532	18,747
1925	....	1,243	362	1,301	182	5,110	8,198	128,987	19,970
1926	....	1,540	439	1,357	156	4,667	8,157	140,022	21,309
1927	....	1,559	382	884	235	4,901	7,960	141,212	17,514
1928	....	1,902	530	1,132	256	4,577	8,397	152,856	17,798
1929	....	1,825	528	1,092	182	4,255	7,882	(h) 138,711	(h) 1,983
1930	....	1,819	529	610	108	4,226	7,291	142,389	2,081
1931	....	878	257	420	Cr. (i)	1,457	3,012	153,130	2,621
1932	....	263	155	1,152	....	1,055	2,624	159,416	2,618
1933	....	374	485	1,355	69	1,838	4,121	167,029	2,693
1934	....	659	492	1,606	196	2,344	5,297	171,696	743
1935	....	997	610	2,155	213	1,103	5,076	177,180	1,048
1936	....	946	602	2,487	169	700	4,903	180,688	1,138
1937	....	491	352	2,303	178	741	4,064	184,666	1,292
1938	....	950	201	1,843	183	1,144	4,321	187,424	614
1939	....	441	184	1,777	230	640	3,272	190,945	719
1940	....	200	104	1,615	732	974	3,624	192,461	608
1941	....	214	18	152	1,649	306	480	2,819	1,147
1942	....	110	25	111	605	70	437	1,359	535
1943	....	157	92	133	100	55	217	754	347
1944	....	49	31	Cr. 143	75	166	34	212	192,957
1945	....	140	11	61	150	241	492	1,094	191,790
1946	....	142	208	75	473	451	276	1,625	193,852
1947	....	535	332	173	1,453	772	821	4,087	198,005
1948	....	676	1,471	316	1,388	1,097	125	5,074	200,549
1949	....	913	2,131	449	1,626	1,099	942	7,161	207,377
1950	....	4,496	4,691	804	2,002	1,357	2,859	16,209	219,100
1951	....	3,723	6,591	1,164	4,091	2,003	3,081	20,653	246,374
1952	....	15,198	6,684	2,694	4,803	2,729	3,409	35,517	276,577
1953	....	13,533	179	2,422	4,858	5,432	8,787	35,213	306,144
1954	....	11,295	1,406	2,328	3,939	3,144	6,276	28,388	331,565
1955	....	9,752	1,410	1,920	5,661	3,993	6,726	29,462	355,763
1956	....	6,139	2,049	1,638	5,516	4,187	7,098	26,629	377,465
1957	....	5,519	4,200	950	7,119	5,599	9,169	32,556	410,290
1958	....	4,209	2,480	1,398	7,694	5,891	6,599	28,272	436,857
1959	....	5,711	2,200	1,428	8,395	7,410	7,199	32,342	464,237
1960	....	4,953	1,553	1,373	9,547	8,723	6,355	32,504	493,575
1961	....	4,221	400	1,966	10,314	10,479	8,037	35,418	523,070
1962	....	5,432	300	2,587	10,952	12,032	6,449	37,751	555,130
1963	....	6,204	500	2,438	10,770	13,420	5,563	38,894	587,336
1964	....	7,496	....	3,028	10,537	15,630	6,409	43,100	626,045
1965	....	6,800	794	2,822	10,957	19,948	5,457	46,779	665,620
1966	....	7,628	1,434	2,583	12,667	19,908	3,580	47,800	705,514
1967	....	9,068	2,427	1,746	13,642	18,230	5,902	51,015	748,601
1968	....	7,750	4,542	2,402	14,552	18,816	5,115	53,177	792,969
1969	....	10,547	5,679	1,190	12,560	20,116	4,765	54,859	840,343

(a) From 1900, year ended 30 June. Sinking fund at 31 March from 1900 to 1928. (b) From 1928 includes expenditure from Loan Suspense Account. (c) Total amount for the years 1877 to 1881. (d) Total amount for the years 1872 to 1881. (e) Not available. (f) Includes expenditure prior to 1890. (g) Including readjustments for previous years. (h) Reduction to operation of Financial Agreement Act of 1928. (i) Less than \$500.

## BANKING AND INSURANCE

Year	Trading Banks			Savings banks (c)		Insurance			
	De-positors' balances (a)	Loans (other than loans to authorised dealers in the short-term money market), advances and bills discounted (a)	Weekly debits to customers' accounts (b)	Operative accounts at end of year	Depositors' balances at end of year	Life		General (e) (f)	
						Sum insured under policies existing at end of year (d)		Premiums	Claims
						Ordinary (including super-annuation)	Industrial		
	\$'000	\$'000	\$m		\$'000	\$'000	\$'000	\$'000	\$'000
1870	(g)	(g)		895	27	(g)	(g)		
1880	(g)	(g)		1,299	45	(g)	(g)		
1890	1,904	2,809		3,014	69	(g)	(g)		
1900	8,781	5,514		33,646	2,598	6,916	439		
1907	10,696	10,123		66,737	5,266	11,242	711		
1908	9,970	10,902		70,340	5,762	11,546	890	(g)	(g)
1909	10,232	10,977		75,852	6,111	11,874	961		
1910	12,627	12,228		84,262	6,955	12,717	1,170		
1911	14,331	15,000		97,147	8,178	13,996	1,369		
1912	13,395	16,824		108,622	8,801	14,925	1,662		
1913	12,841	16,353		121,201	9,350	15,277	2,017		
1914	13,787	16,633		134,510	9,851	15,842	2,267		
1915	15,229	17,418		144,777	10,285	16,058	2,451		
1916	16,099	18,635		156,458	10,667	16,660	2,731		
1917	17,178	18,285		171,207	11,683	17,239	3,042		
1918	19,374	19,170		182,140	12,580	18,103	3,456		
1919	21,606	20,829		196,584	14,005	19,851	3,907		
1920	24,742	21,594		211,415	14,516	21,640	4,089	1,080	368
1921	24,004	21,833		226,468	15,433	24,183	4,699	1,112	684
1922	24,519	21,531	(g)	237,505	15,519	25,586	5,189	1,195	658
1923	25,349	22,796		250,214	16,067	27,544	5,707	1,242	435
1924	26,245	23,313		264,842	16,436	29,310	6,360	1,528	543
1925	27,200	24,095		277,701	16,608	31,739	6,811	1,669	724
1926	(h) 28,887	(h) 25,745		292,353	17,940	33,970	7,317	1,832	901
1927	29,301	29,233		309,176	13,389	36,279	8,042	(h) 831	(h) 432
1928	31,025	30,592		330,284	21,291	38,926	8,750	2,111	1,200
1929	26,811	34,480		350,046	23,218	41,268	9,366	2,391	1,205
1930	25,524	41,773		367,665	23,457	41,656	9,003	2,452	1,163
1931	24,455	41,635		371,662	21,735	39,906	8,353	1,914	971
1932	28,563	39,292		206,997	20,435	39,181	8,585	1,693	655
1933	29,785	38,433		194,095	20,129	39,447	8,918	1,786	796
1934	32,853	38,742		192,911	20,798	40,631	9,394	1,746	801
1935	36,206	41,061		197,611	21,858	42,899	9,945	1,929	910
1936	38,731	43,232		208,990	23,034	45,608	10,688	2,176	1,015
1937	39,463	44,532		217,247	23,670	48,857	11,373	2,410	1,366
1938	41,230	45,141		225,118	24,075	51,653	11,944	2,641	1,526
1939	41,181	47,774		232,564	24,792	53,853	12,609	2,746	1,462
1940	42,219	47,529		233,649	23,720	54,708	13,086	2,884	1,460
1941	47,099	45,617		238,820	25,042	55,842	13,875	2,792	1,236
1942	51,918	43,638		250,153	27,642	55,881	15,311	2,806	1,245
1943	61,135	37,827		279,469	37,769	57,865	16,656	2,347	1,014
1944	71,529	33,462		301,225	51,581	61,380	17,962	2,369	897
1945	74,846	31,504		316,565	63,526	66,254	19,024	2,565	1,154
1946	(i) 66,652	(i) 33,726	(j) 11·6	340,737	76,578	77,608	21,036	2,890	1,223
1947	72,490	45,388	14·2	349,091	73,250	88,016	23,054	3,503	1,737
1948	82,032	48,754	17·4	358,709	72,365	98,891	25,139	4,188	2,089
1949	100,971	49,904	21·4	365,130	75,070	111,213	27,127	5,071	2,053
1950	116,458	55,301	27·4	378,670	79,225	126,332	29,503	5,913	2,440
1951	149,244	66,680	38·6	392,790	89,345	148,724	32,460	7,360	3,341
1952	170,923	83,353	43·6	403,678	94,342	171,007	35,257	9,358	5,261
1953	170,234	87,353	44·2	414,288	99,589	195,499	38,110	10,736	5,453
1954	181,863	106,429	50·8	422,480	105,229	221,568	40,240	11,427	5,276
1955	180,895	137,830	52·4	426,637	107,258	251,543	41,487	12,563	6,281
1956	174,070	142,156	53·9	446,419	115,868	282,139	42,114	13,546	7,126
1957	185,576	135,074	57·1	473,548	125,386	317,264	42,535	13,792	8,202
1958	186,478	141,198	60·4	497,690	131,896	352,360	43,003	15,601	7,807
1959	180,300	147,106	61·5	527,079	142,998	396,322	43,279	17,169	9,165
1960	192,076	142,064	69·7	550,966	157,246	459,740	44,325	19,951	10,671
1961	190,094	146,244	75·7	577,619	161,424	523,636	44,745	21,607	12,770
1962	209,274	139,204	80·4	625,070	181,056	597,892	46,754	22,914	12,255
1963	219,952	153,528	88·2	683,417	208,812	679,161	47,983	24,761	14,723
1964	242,268	164,878	96·4	736,009	239,766	774,550	50,588	26,285	15,629
1965	272,430	186,000	106·3	786,340	261,654	881,652	53,565	28,224	16,108
1966	310,432	195,190	122·4	848,562	292,871	1,005,119	57,916	32,385	18,247
1967	355,899	212,023	138·6	905,349	330,807	1,164,613	63,960	36,535	20,995
1968	398,837	252,627	169·1	970,120	373,602	1,383,330	69,961	*41,724	*24,218
1969	462,559	280,147	209·0	1,036,180	412,984	1,651,918	75,605	47,566	28,769

(a) Average based on amounts as at close of business each week. From 1927, year ended 30 June. (b) Weekly average for year ended 30 June. Excludes debits to Australian Government accounts at city branches. From 1946-47 includes The Rural and Industries Bank of Western Australia (Rural Department). (c) From 1900, year ended 30 June. (d) Actual date varies according to the financial year of individual insurance companies. (e) From 1927, year ended 30 June. (f) Excludes transactions of The Motor Vehicle Insurance Trust, which became the sole insurer in respect of motor vehicle (third party) insurance from 1 July 1949. (g) Not available. (h) Six months ended 30 June. (i) Average for nine months to 30 June. (j) Ten months ended June 1946. \* Revised.

## TRANSPORT ; CUSTOMS AND EXCISE

Year	State Government railways (a)				Private railways	Customs and excise revenue (e)			Shipping (e) (f)	
	Route miles at end of year (b)	Operating revenue (c)	Operating expenses (c)	Paying goods and livestock carried (c)	Route miles at end of year (d)	Customs	Excise	Total	Clearances to ports outside the State	
									Number	Net tons
		\$'000	\$'000	'000 tons		\$'000	\$'000	\$'000		'000
1870 ....	....	....	....	....	....	81	....	81	131	68
1880 ....	34	5	8	2	38	186	....	186	168	126
1890 ....	188	90	103	61	385	356	....	356	267	420
1900 ....	1,355	2,519	1,723	1,384	623	1,889	63	1,952	747	1,606
1907 ....	1,764	3,075	2,272	2,091	765	1,346	215	1,561	597	1,760
1908 ....	1,943	3,004	2,015	2,059	798	1,309	216	1,525	592	1,817
1909 ....	2,045	3,017	1,948	1,997	842	1,234	206	1,440	650	2,054
1910 ....	2,145	3,275	2,194	2,242	902	1,543	213	1,756	726	2,372
1911 ....	2,376	3,689	2,433	2,489	948	1,593	239	1,832	781	2,566
1912 ....	2,598	3,769	2,688	2,542	981	1,878	229	2,107	765	2,614
1913 ....	2,854	4,076	3,013	2,866	952	1,803	193	1,996	873	3,023
1914 ....	2,967	4,514	3,144	3,170	960	(g) 865	(g) 83	(g) 948	(g) 527	(g) 1,795
1915 ....	3,332	4,116	2,996	2,524	976	1,529	234	1,763	655	2,384
1916 ....	3,332	4,176	3,023	2,555	993	1,513	298	1,811	689	2,493
1917 ....	3,425	3,755	2,897	2,400	1,010	1,334	284	1,618	731	2,558
1918 ....	3,491	3,633	2,903	2,259	983	794	341	1,135	315	1,102
1919 ....	3,539	3,746	3,135	2,379	898	801	549	1,350	636	2,112
1920 ....	3,539	4,584	4,001	2,614	918	1,311	799	2,110	729	2,659
1921 ....	3,539	5,440	4,844	2,604	895	2,018	1,176	3,194	789	2,826
1922 ....	3,539	5,656	4,658	2,548	878	1,550	1,148	2,698	874	3,231
1923 ....	3,555	5,832	4,421	2,624	865	2,005	1,145	3,150	709	3,088
1924 ....	3,629	6,455	4,596	3,023	812	2,377	1,190	3,567	673	3,101
1925 ....	3,733	6,719	4,710	3,285	854	2,707	1,177	3,884	805	3,658
1926 ....	3,865	6,675	5,018	3,237	884	2,791	1,249	4,040	685	3,256
1927 ....	3,918	7,216	5,371	3,439	872	3,356	1,332	4,688	799	3,797
1928 ....	3,977	7,716	5,822	3,698	838	3,454	1,429	4,883	812	3,806
1929 ....	4,079	7,600	6,111	3,670	842	3,788	1,431	5,219	808	3,674
1930 ....	4,111	7,318	6,226	3,530	847	3,882	1,527	5,409	794	3,932
1931 ....	4,181	6,398	5,222	3,154	826	2,166	1,304	3,470	742	3,686
1932 ....	4,235	5,845	4,247	2,848	830	2,117	1,327	3,444	694	3,530
1933 ....	4,338	5,864	4,223	2,840	845	2,430	1,719	4,149	691	3,564
1934 ....	4,360	5,839	4,373	2,652	854	2,574	1,628	4,202	683	3,568
1935 ....	4,359	6,624	4,765	2,903	869	2,766	1,736	4,502	730	3,775
1936 ....	4,358	6,892	4,976	2,887	880	3,239	1,830	5,069	725	3,831
1937 ....	4,357	6,924	5,240	2,798	873	3,504	1,926	5,430	761	3,754
1938 ....	4,376	7,356	5,420	3,062	854	3,710	1,955	5,665	866	4,111
1939 ....	4,378	7,198	5,823	2,859	844	3,381	2,218	5,599	930	4,327
1940 ....	4,381	7,112	5,657	2,659	831	3,769	2,395	6,164	805	3,751
1941 ....	4,381	7,144	5,516	2,604	815	2,934	3,149	6,083	556	3,087
1942 ....	4,381	7,993	6,052	2,638	818	2,273	3,757	6,030	492	2,508
1943 ....	4,381	8,836	6,895	2,505	849	1,646	5,569	7,215	312	1,467
1944 ....	4,381	8,773	7,592	2,560	829	1,661	6,225	7,886	385	1,580
1945 ....	4,381	8,552	7,529	2,904	798	1,783	5,705	7,488	382	1,528
1946 ....	4,381	8,213	8,053	2,728	706	2,707	6,508	9,215	490	2,473
1947 ....	4,348	8,092	8,848	2,577	759	4,377	6,894	11,271	572	2,646
1948 ....	4,348	9,198	11,140	2,858	739	5,784	9,264	15,048	752	3,431
1949 ....	4,321	10,430	13,405	2,737	734	6,987	10,254	17,241	950	4,678
1950 ....	4,252	12,944	15,003	2,843	774	10,166	10,943	21,109	1,006	5,272
1951 ....	4,228	14,392	17,238	3,033	752	10,839	11,973	22,812	1,060	5,552
1952 ....	4,113	18,327	21,331	3,063	752	14,045	16,312	30,357	1,045	5,524
1953 ....	4,108	15,945	24,175	2,619	724	9,908	18,395	28,303	1,025	5,407
1954 ....	4,111	22,749	27,512	3,206	758	12,241	19,447	31,688	1,005	5,320
1955 ....	4,111	25,061	27,871	3,407	748	12,196	21,812	34,008	1,136	6,144
1956 ....	4,119	26,548	29,986	3,793	726	8,473	24,092	32,565	1,268	6,776
1957 ....	4,117	28,088	32,023	4,223	706	5,504	30,078	35,582	1,244	6,531
1958 ....	4,117	25,950	29,685	3,589	575	5,476	32,547	38,023	1,219	6,499
1959 ....	4,117	27,400	29,865	3,913	575	4,800	32,398	37,198	1,282	6,607
1960 ....	4,120	30,077	30,816	4,533	517	5,614	33,634	39,248	1,403	7,234
1961 ....	4,123	33,076	31,103	4,833	469	7,470	33,835	41,305	1,598	8,547
1962 ....	(h) 3,851	35,608	31,527	5,342	(i) 558	7,156	35,705	42,861	1,687	8,962
1963 ....	(h) 3,797	33,429	31,150	4,793	552	8,996	35,944	44,940	1,528	8,252
1964 ....	(h) 3,677	35,190	32,250	5,187	413	10,369	37,839	48,208	1,580	8,627
1965 ....	3,733	36,686	32,920	5,229	(j) 21	10,692	43,349	54,041	1,560	8,593
1966 ....	3,747	43,669	35,985	6,384	(k) *286	15,251	53,536	68,787	1,711	9,528
1967 ....	3,815	49,120	40,170	7,873	*283	13,569	58,176	71,745	1,690	10,977
1968 ....	3,815	52,773	42,623	8,910	283	19,468	62,903	82,371	1,770	12,916
1969 ....	3,826	50,558	44,503	8,934	(l) 548	21,202	69,289	90,490	1,848	15,372

(a) From 1900, year ended 30 June. (b) Open for general and passenger traffic. (c) From 1942 includes operations of Railway Road Services, which began in November 1941. (d) From 1900 to 1964 includes 277 miles of line open for general and passenger traffic. From 1915, year ended 30 June. (e) From 1915, year ended 30 June. (f) From 1966-67 excludes vessels of 200 net tons and under. (g) Six months ended 30 June. (h) Decrease due to proclamations of closure issued by authority of the Railways (*Cue-Big Bell and other Railways Discontinuance Act, 1960*). (i) Increase due to the transfer of all government-operated timber railways to private control. (j) Decrease due to transfer of Midland Railway Company to Western Australian Government Railways, and to closure of timber and mining railways. (k) Increase due to opening of Goldsworthy-Port Hedland, Tom Price-Dampier and Westmine-Tilley iron-ore railways. (l) Increase due to opening of Newman-Port Hedland iron-ore railway. \* Revised.

## MOTOR VEHICLE REGISTRATIONS; EXPORTS OF WHEAT

Year	New motor vehicles registered (a)				Motor vehicles on register (b)				Wheat exports (c)	
	Motor cars (d)	Utilities, vans, trucks and omnibuses	Motor cycles (e)	Total	Motor cars (f)	Utilities, vans, trucks and omnibuses	Motor cycles (e)	Total	Quantity ('000 bushels)	Value (\$'000)
1860 ....									(g)	(g)
1870 ....									15	8
1880 ....									1	(g)
1890 ....									490	193
1900 ....									212	90
1907 ....					n.a.				625	258
1908 ....									2,015	813
1909 ....									2,231	774
1910 ....									502	200
1911 ....									4,106	1,528
1912 ....						n.a.	n.a.	n.a.	(h) 7,286	(h) 2,688
1913 ....									(g) 3,931	(g) 2,047
1914 ....									7,036	3,239
1915 ....	n.a.	n.a.	n.a.	n.a.	2,538				1,694	875
1916 ....					2,938				1,651	800
1917 ....					3,404				9,151	5,083
1918 ....										
1919 ....					4,181				6,576	5,860
1920 ....					4,403				10,357	6,076
1921 ....					7,280				5,363	2,942
1922 ....					11,162				10,925	5,085
1923 ....					15,261				14,986	10,316
1924 ....					20,011				13,175	8,373
1925 ....					19,451	5,819			16,330	9,334
1926 ....					24,205	8,104			26,194	13,989
1927 ....					27,174	9,767			26,091	13,384
1928 ....					31,130	11,358	7,707	50,195	24,953	12,258
1929 ....										
1930 ....										
1931 ....					27,741	10,880	6,777	45,398	42,440	10,577
1932 ....					28,608	12,094	6,700	47,402	36,868	10,647
1933 ....					27,969	12,626	6,700	47,295	30,695	9,323
1934 ....					28,761	13,937	6,284	48,982	23,360	6,834
1935 ....					30,578	15,530	6,597	52,705	24,936	7,844
1936 ....					32,329	17,362	6,861	56,552	14,897	5,607
1937 ....					34,180	19,919	6,977	61,076	13,780	7,255
1938 ....					36,386	22,596	7,079	66,061	22,038	9,667
1939 ....	3,297	1,814	568	5,679	38,039	24,441	7,199	69,679	22,614	6,055
1940 ....	2,871	1,517	399	4,787	38,907	25,026	6,789	70,722	15,330	4,669
1941 ....	1,015	632	200	1,847	36,995	24,788	6,704	68,487	14,856	5,858
1942 ....	250	353	74	677	29,022	21,625	4,057	54,704	9,774	4,021
1943 ....	218	151	57	426	29,750	21,189	3,935	54,874	5,138	2,111
1944 ....	19	1,102	109	1,230	30,295	22,459	4,324	57,078	12,057	5,813
1945 ....	40	597	192	829	30,635	23,943	4,501	59,079	23,590	14,955
1946 ....	101	456	271	828	31,408	28,904	6,799	67,111	13,510	11,696
1947 ....	1,354	1,126	678	3,158	32,879	32,097	8,199	73,175	6,802	8,964
1948 ....	2,963	1,975	1,059	5,997	35,596	35,285	8,877	79,758	19,312	33,809
1949 ....	4,684	3,122	1,769	9,575	40,119	38,901	10,974	89,994	18,401	28,100
1950 ....	8,926	4,707	2,346	15,979	48,632	43,206	12,897	104,735	21,510	33,384
1951 ....	8,201	6,610	2,802	17,613	56,235	47,908	14,535	118,678	30,510	51,688
1952 ....	8,836	5,750	2,740	17,326	64,277	52,627	16,047	132,951	26,823	45,728
1953 ....	6,879	4,881	1,416	13,176	69,917	56,445	15,565	141,927	23,319	40,347
1954 ....	9,926	5,601	1,258	16,785	78,312	60,362	15,243	153,917	6,800	11,272
1955 ....	12,394	5,993	1,202	19,589	90,255	63,870	14,662	168,787	19,335	27,478
1956 ....	10,100	5,203	1,089	16,392	99,206	62,809	12,959	174,974	22,773	28,860
1957 ....	9,321	4,418	1,192	14,931	104,506	63,315	12,731	180,552	46,796	61,291
1958 ....	10,140	5,562	1,702	17,404	111,825	63,598	12,631	188,054	26,644	40,861
1959 ....	10,389	5,140	2,071	17,600	119,957	65,588	12,814	198,359	23,503	33,113
1960 ....	13,492	5,695	1,949	21,136	130,476	68,702	12,876	212,054	36,713	49,442
1961 ....	15,161	5,542	1,080	21,783	141,612	70,974	12,589	225,175	52,480	71,280
1962 ....	17,082	5,833	902	23,817	155,447	74,224	12,390	242,061	73,883	104,356
1963 ....	23,175	6,367	754	30,296	170,781	75,748	11,649	258,178	50,720	72,197
1964 ....	24,958	7,013	628	32,599	189,251	78,239	10,449	277,939	55,022	77,881
1965 ....	23,304	6,897	553	30,754	202,914	79,316	9,244	291,474	40,507	56,955
1966 ....	23,418	9,170	706	33,294	219,816	84,423	8,777	313,016	69,372	96,515
1967 ....	27,922	9,404	1,158	38,484	240,519	87,661	8,881	337,061	84,980	126,918
1968 ....	33,368	10,448	1,525	45,341	263,552	92,563	9,632	365,747	87,200	121,764
1969 ....	35,379	11,018	1,539	47,936	288,731	96,624	10,427	395,782	55,901	77,987

n.a. denotes 'not applicable' or 'not available'.

(a) Year ended 30 June. (b) From 1929, at 30 June; for earlier years, at various dates. For years before 1946, excludes Commonwealth-owned vehicles; from 1946, includes Commonwealth-owned vehicles other than those of defence services. From 1956, new series based on the results of the periodic Census of Motor Vehicles. (c) From 1915, year ended 30 June. (d) From 1959, includes station wagons previously included with utilities, vans, trucks and omnibuses. (e) Including motor scooters. (f) From June 1956, includes station wagons previously included with utilities, vans, trucks and omnibuses. (g) Less than 500. (h) Six months ended 30 June.

## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Wool				Meats—Fresh, chilled or frozen					
	Greasy (b)		Degreased		Beef and veal		Mutton and lamb		Pigmeat	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000
1840 ....	50	5								
1850 ....	310	31								
1860 ....	657	99	(c)	(c)						
1870 ....	1,788	179								
1880 ....	4,343	543								
1890 ....	6,969	523								
1900 ....	8,658	505	436	36	(d)	(d)	(d)	(d)	(d)	(d)
1907 ....	19,914	1,583	296	41			370	11		
1908 ....	20,303	1,239	440	35			95	3		
1909 ....	26,431	1,951	714	75					1	(e)
1910 ....	25,777	1,894	420	40						
1911 ....	24,981	1,835	176	16						
1912 ....	27,902	2,052	225	19						
1913 ....	25,505	1,933	227	21					(e)	
1914 (f) ..	4,846	361	35	3						
1915 ....	23,906	1,626	99	10						
1916 ....	28,869	2,517	235	29	4,311	176	41	2		
1917 ....	24,327	2,831	78	10						
1918 ....	10,519	1,056	113	15	1,188	36	115	4	324	15
1919 ....	29,022	3,775	623	129	239	6	138	4	133	6
1920 ....	56,284	7,218	3,316	657	662	33				
1921 ....	42,048	4,593	1,084	183	5,762	248	118	7	45	5
1922 ....	54,512	5,673	4,181	731	2,479	79				
1923 ....	39,275	5,986	2,651	479	9,955	305	866	55	1	(e)
1924 ....	42,359	8,028	1,516	446	10,647	272	446	26		
1925 ....	33,722	7,030	1,293	443	7,106	198				
1926 ....	48,024	6,703	1,666	353	8,119	240				
1927 ....	52,131	6,694	1,657	342	6,697	198				
1928 ....	60,402	9,734	839	192	11,026	272	227	15		
1929 ....	56,202	7,615	843	207	9,313	226				
1930 ....	61,777	5,422	1,025	136	11,381	272				
1931 ....	69,397	4,652	1,386	121	11,315	244	855	35	209	7
1932 ....	64,591	4,540	1,966	151	11,240	235	2,113	103	1,221	53
1933 ....	68,192	4,871	2,695	236	14,406	276	384	15	949	37
1934 ....	69,998	9,131	2,728	491	12,602	234	1,352	49	668	29
1935 ....	80,550	6,479	3,451	348	12,072	233	4,979	236	1,194	55
1936 ....	78,488	8,892	3,081	451	17,036	321	5,557	282	1,550	65
1937 ....	58,324	7,854	2,448	475	11,227	249	4,555	247	1,306	67
1938 ....	53,452	5,877	2,706	446	11,445	314	8,705	470	823	52
1939 ....	68,409	6,072	3,606	469	16,501	497	11,775	638	1,278	80
1940 ....	65,279	7,603	3,648	661	10,639	329	10,285	533	4,990	324
1941 ....	19,983	2,601	2,799	518	12,309	407	9,691	496	13,261	851
1942 ....	75,739	9,836	4,928	1,030	7,883	327	8,122	435	10,295	682
1943 ....	28,514	4,163	2,731	594	(e)	(e)	8,785	458	2,321	155
1944 ....	68,663	10,842	4,619	917	3,185	190	14,691	763	3,457	238
1945 ....	52,058	8,082	4,885	1,025	2,517	158	8,824	410	3,741	254
1946 ....	108,180	17,136	11,746	2,778	9,517	558	5,002	275	7,497	545
1947 ....	75,187	15,561	17,457	4,960	14,017	691	8,997	409	2,880	248
1948 ....	80,205	27,801	16,073	5,443	14,007	604	11,198	584	669	53
1949 ....	85,919	36,717	13,588	6,352	17,760	840	10,157	608	1,375	179
1950 ....	83,405	40,071	17,491	10,852	19,015	1,183	5,274	485	359	59
1951 ....	80,732	96,493	11,055	16,066	16,973	1,221	2,070	217	616	113
1952 ....	91,455	57,291	11,353	10,389	13,290	1,135	2,301	301	934	232
1953 ....	100,909	67,759	12,604	11,363	11,058	1,437	14,527	1,463	1,020	303
1954 ....	100,701	71,346	11,918	10,914	13,555	1,748	7,295	875	474	152
1955 ....	96,554	59,296	13,261	11,267	14,939	2,038	7,109	1,328	2,313	532
1956 ....	113,289	57,894	16,745	12,419	16,757	2,343	14,556	2,156	1,637	482
1957 ....	108,582	71,251	18,746	16,259	9,099	1,221	12,761	1,741	1,615	588
1958 ....	96,453	57,224	18,557	15,462	24,305	3,302	11,205	1,900	5,124	1,462
1959 ....	111,131	46,313	21,763	12,224	23,226	4,342	21,923	3,177	4,371	1,178
1960 ....	111,104	58,137	27,430	19,820	29,977	6,742	19,258	2,378	2,618	953
1961 ....	131,903	59,290	26,128	15,552	27,365	6,141	25,059	3,901	4,176	1,501
1962 ....	136,894	68,177	25,331	15,688	27,654	6,299	18,669	2,436	6,946	2,025
1963 ....	131,433	66,401	25,222	15,706	38,069	9,382	16,376	2,401	4,543	1,404
1964 ....	159,262	97,138	22,901	17,101	45,257	11,497	11,872	1,895	1,898	718
1965 ....	151,812	83,030	22,586	15,264	42,682	11,730	11,111	1,981	1,259	516
1966 ....	193,682	101,905	21,705	13,223	39,937	12,108	22,750	4,357	926	376
1967 ....	214,064	114,052	21,578	12,943	37,284	11,987	21,278	3,723	1,245	470
1968 ....	249,616	113,868	25,317	12,549	37,084	12,995	28,998	4,745	1,205	474
1969 ....	291,985	142,065	27,236	15,885	44,555	16,939	47,450	7,218	1,416	564

(a) From 1915, year ended 30 June. (b) For 1890 and earlier years includes degreased wool for which figures are not available separately. (c) See note (b). (d) Separate particulars not available. Total exports of fresh meats were 184,379 lb valued at \$9,164. (e) Less than 500. (f) Six months ended 30 June.



## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Flour		Butter		Potatoes		Fresh fruit (b)	Cattle	Sheep
	Quantity	Value	Quantity	Value	Quantity	Value	Value	Value	Value
	short tons (c)	\$'000	cwt	\$'000	tons	\$'000	\$'000	\$'000	\$'000
1850	....	....	....	....	....	....	....	....	....
1860	....	....	....	....	....	....	....	....	....
1870	....	....	....	....	....	....	....	....	....
1880	....	....	....	....	....	....	....	....	....
1890	....	....	....	....	....	....	....	....	....
1900	....	....	....	....	....	....	....	....	....
1907	....	....	....	....	....	....	....	....	....
1908	....	....	....	....	....	....	....	....	....
1909	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	....	....
1913	....	....	....	....	....	....	....	....	....
1914	....	....	....	....	....	....	....	....	....
1915	....	....	....	....	....	....	....	....	....
1916	....	....	....	....	....	....	....	....	....
1917	....	....	....	....	....	....	....	....	....
1918	....	....	....	....	....	....	....	....	....
1919	....	....	....	....	....	....	....	....	....
1920	....	....	....	....	....	....	....	....	....
1921	....	....	....	....	....	....	....	....	....
1922	....	....	....	....	....	....	....	....	....
1923	....	....	....	....	....	....	....	....	....
1924	....	....	....	....	....	....	....	....	....
1925	....	....	....	....	....	....	....	....	....
1926	....	....	....	....	....	....	....	....	....
1927	....	....	....	....	....	....	....	....	....
1928	....	....	....	....	....	....	....	....	....
1929	....	....	....	....	....	....	....	....	....
1930	....	....	....	....	....	....	....	....	....
1931	....	....	....	....	....	....	....	....	....
1932	....	....	....	....	....	....	....	....	....
1933	....	....	....	....	....	....	....	....	....
1934	....	....	....	....	....	....	....	....	....
1935	....	....	....	....	....	....	....	....	....
1936	....	....	....	....	....	....	....	....	....
1937	....	....	....	....	....	....	....	....	....
1938	....	....	....	....	....	....	....	....	....
1939	....	....	....	....	....	....	....	....	....
1940	....	....	....	....	....	....	....	....	....
1941	....	....	....	....	....	....	....	....	....
1942	....	....	....	....	....	....	....	....	....
1943	....	....	....	....	....	....	....	....	....
1944	....	....	....	....	....	....	....	....	....
1945	....	....	....	....	....	....	....	....	....
1946	....	....	....	....	....	....	....	....	....
1947	....	....	....	....	....	....	....	....	....
1948	....	....	....	....	....	....	....	....	....
1949	....	....	....	....	....	....	....	....	....
1950	....	....	....	....	....	....	....	....	....
1951	....	....	....	....	....	....	....	....	....
1952	....	....	....	....	....	....	....	....	....
1953	....	....	....	....	....	....	....	....	....
1954	....	....	....	....	....	....	....	....	....
1955	....	....	....	....	....	....	....	....	....
1956	....	....	....	....	....	....	....	....	....
1957	....	....	....	....	....	....	....	....	....
1958	....	....	....	....	....	....	....	....	....
1959	....	....	....	....	....	....	....	....	....
1960	....	....	....	....	....	....	....	....	....
1961	....	....	....	....	....	....	....	....	....
1962	....	....	....	....	....	....	....	....	....
1963	....	....	....	....	....	....	....	....	....
1964	....	....	....	....	....	....	....	....	....
1965	....	....	....	....	....	....	....	....	....
1966	....	....	....	....	....	....	....	....	....
1967	....	....	....	....	....	....	....	....	....
1968	....	....	....	....	....	....	....	....	....
1969	....	....	....	....	....	....	....	....	....

(a) From 1915, year ended 30 June. (b) Includes tomatoes for 1932-33 and earlier years. (c) Short ton = 2,000 lb.  
 (d) Not available. (e) Less than \$500. (f) Six months ended 30 June.

## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)					Skins and hides		Timber (b)		Rock lobster tails (c)		Pearl-shell		Iron and steel (d)
					Value	Quantity	Value	Quantity	Value	Quantity	Value	Value	
					\$'000	'000 sup. ft	\$'000	'000 lb	\$'000	cwt	\$'000	\$'000	
1850	....	....	....	....	1	126	2	....	....	....	....	....	
1860	....	....	....	....	(e)	658	10	....	....	....	....	....	
1870	....	....	....	....	(e)	2,566	35	....	....	1,480	19	....	
1880	....	....	....	....	8	7,950	133	....	....	14,380	79	....	
1890	....	....	....	....	49	14,066	164	....	....	24,745	173	....	
1900	....	....	....	....	150	68,705	916	....	....	14,747	173	7	
1907	....	....	....	....	373	76,826	1,010	....	....	27,881	340	7	
1908	....	....	....	....	276	118,435	1,627	....	....	30,693	381	6	
1909	....	....	....	....	395	129,868	1,734	....	....	23,412	350	5	
1910	....	....	....	....	482	144,858	1,945	....	....	29,281	492	5	
1911	....	....	....	....	347	149,390	1,972	....	....	27,471	482	2	
1912	....	....	....	....	365	135,565	1,807	....	....	31,915	843	3	
1913	....	....	....	....	513	163,438	2,179	....	....	30,419	549	3	
1914 (f)	....	....	....	....	209	75,357	1,004	....	....	10,143	172	8	
1915	....	....	....	....	300	119,622	1,617	....	....	22,806	323	45	
1916	....	....	....	....	504	65,188	884	....	....	25,045	317	14	
1917	....	....	....	....	445	46,688	622	....	....	24,000	394	21	
1918	....	....	....	....	407	41,230	548	....	....	17,267	288	53	
1919	....	....	....	....	544	49,629	665	....	....	13,253	236	62	
1920	....	....	....	....	1,246	60,784	931	....	....	33,505	671	16	
1921	....	....	....	....	759	117,795	2,274	....	....	23,056	470	26	
1922	....	....	....	....	730	99,707	2,082	....	....	30,440	508	16	
1923	....	....	....	....	1,092	94,935	1,995	....	....	25,477	429	18	
1924	....	....	....	....	1,040	133,648	2,735	....	....	28,479	487	6	
1925	....	....	....	....	955	142,132	2,956	....	....	23,264	469	13	
1926	....	....	....	....	883	144,017	3,046	....	....	25,762	465	9	
1927	....	....	....	....	752	157,355	3,316	....	....	24,502	425	10	
1928	....	....	....	....	1,106	124,617	2,531	....	....	19,066	332	7	
1929	....	....	....	....	1,101	91,623	1,921	....	....	21,515	345	3	
1930	....	....	....	....	738	78,957	1,615	....	....	19,378	331	3	
1931	....	....	....	....	539	49,534	1,015	....	....	20,313	334	2	
1932	....	....	....	....	395	36,752	722	....	....	12,237	194	1	
1933	....	....	....	....	480	26,826	523	....	....	20,653	294	1	
1934	....	....	....	....	771	48,730	972	....	....	16,854	196	7	
1935	....	....	....	....	640	63,913	1,270	....	....	19,435	189	3	
1936	....	....	....	....	1,061	67,178	1,356	....	....	19,363	214	3	
1937	....	....	....	....	1,143	68,087	1,397	....	....	18,261	247	7	
1938	....	....	....	....	985	90,549	1,860	....	....	24,781	336	12	
1939	....	....	....	....	736	68,451	1,436	....	....	22,621	212	15	
1940	....	....	....	....	745	60,595	1,251	....	....	16,859	153	31	
1941	....	....	....	....	580	73,094	1,546	....	....	13,704	153	35	
1942	....	....	....	....	772	62,697	1,369	....	....	11,616	142	19	
1943	....	....	....	....	348	42,272	1,189	....	....	120	1	5	
1944	....	....	....	....	680	43,744	1,216	....	....	37	1	23	
1945	....	....	....	....	537	34,218	1,131	....	....	....	....	100	
1946	....	....	....	....	1,274	40,476	1,429	....	....	260	8	9	
1947	....	....	....	....	2,131	41,505	1,719	....	....	2,491	120	99	
1948	....	....	....	....	2,048	43,349	2,230	....	....	6,733	340	89	
1949	....	....	....	....	2,134	38,379	1,986	(g)	(g)	8,169	367	59	
1950	....	....	....	....	2,329	34,295	1,949	1,143	463	6,997	248	95	
1951	....	....	....	....	5,294	28,110	1,783	3,165	1,517	6,797	274	83	
1952	....	....	....	....	3,194	28,659	2,075	2,891	1,861	8,205	406	58	
1953	....	....	....	....	3,942	47,585	4,147	2,930	2,085	10,538	612	357	
1954	....	....	....	....	3,295	46,318	4,480	3,222	2,342	12,271	708	279	
1955	....	....	....	....	2,921	41,748	3,847	3,377	2,490	13,785	820	602	
1956	....	....	....	....	3,274	54,591	5,598	3,529	3,022	15,954	999	530	
1957	....	....	....	....	4,650	56,147	6,215	3,566	3,514	21,671	1,391	1,174	
1958	....	....	....	....	3,898	66,872	7,496	4,708	3,965	22,580	1,381	2,470	
1959	....	....	....	....	3,489	77,561	8,415	6,117	5,281	15,521	772	4,218	
1960	....	....	....	....	4,767	73,601	7,760	6,604	6,499	12,535	707	11,198	
1961	....	....	....	....	3,828	66,412	7,175	5,106	5,881	11,283	502	12,781	
1962	....	....	....	....	4,580	68,059	7,528	7,952	9,778	8,924	320	13,826	
1963	....	....	....	....	4,339	65,811	7,241	7,694	8,910	7,647	289	15,107	
1964	....	....	....	....	4,966	63,331	6,813	7,532	9,211	3,304	112	15,029	
1965	....	....	....	....	4,177	56,521	6,279	5,891	10,592	3,186	133	17,933	
1966	....	....	....	....	5,447	29,185	3,687	7,040	13,821	3,045	123	14,458	
1967	....	....	....	....	5,377	58,960	7,475	8,032	13,873	4,284	189	15,658	
1968	....	....	....	....	4,699	35,850	4,947	8,640	17,989	4,178	147	11,442	
1969	....	....	....	....	6,013	37,271	5,068	6,698	17,133	4,180	125	27,002	

(a) From 1915, year ended 30 June. (b) Excludes plywood and veneers and small quantities of timber for which the superficial footage is not recorded. For the years 1907 to 1921, figures are approximate. (c) Figures for the years 1949–50 to 1951–52 represent overseas exports only and exclude small consignments to other Australian States. Those for 1952–53 to 1959–60 include small consignments of cooked whole rock lobsters to other Australian States. (d) Principally pig-iron, cast iron and basic shapes and sections of iron and steel. (e) Less than \$500. (f) Six months ended 30 June. (g) Precise information not available, but it is known that the value of exports was about \$500,000.

## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Gold mint bullion (b)		Lead and zinc ores (c)	Tin ore and concentrates	Asbestos (crude and fibre)		Manganese ore and concentrates		Iron ore and concentrates		Ilmenite concentrates (including leucoxene)	
	Quantity	Value (d)	Value	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 fine oz	\$'000	\$'000	\$'000	short tons (e)	\$'000	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1850	....	....	(f)	....	....	....	....	....	....	....	....	....
1860	....	....	2	....	....	....	....	....	....	....	....	....
1870	....	....	29	....	....	....	....	....	....	....	....	....
1880	....	....	31	....	....	....	....	....	....	....	....	....
1890	23	173	4	11	....	....	....	....	....	....	....	....
1900	1,000	7,589	(f)	76	....	....	....	....	....	....	....	....
1907	538	4,545	4	303	....	....	....	....	....	....	....	....
1908	485	4,105	10	167	....	....	....	....	....	....	....	....
1909	512	4,328	4	126	....	....	....	....	(f)	(f)	....	....
1910	334	2,835	4	93	....	....	....	....	....	....	....	....
1911	309	2,613	31	110	....	....	....	....	....	....	....	....
1912	269	2,285	45	159	....	....	(f)	(f)	....	....	....	....
1913	198	1,683	119	144	....	....	....	....	....	....	....	....
1914 (g)	60	513	57	39	....	....	....	....	....	....	....	....
1915	100	827	95	51	....	....	....	....	....	....	....	....
1916	183	1,547	22	92	....	....	....	(f)	....	....	....	....
1917	....	....	7	113	....	....	....	....	....	....	....	....
1918	....	....	9	110	1	(f)	....	....	....	....	....	....
1919	....	....	8	112	3	(f)	....	....	....	....	....	....
1920	41	452	102	129	....	....	....	....	....	....	....	....
1921	(f)	1	67	41	145	13	....	....	....	....	....	....
1922	....	....	....	10	98	8	....	....	....	....	....	....
1923	....	....	47	18	....	....	....	....	....	....	....	....
1924	91	767	108	38	....	....	....	....	....	....	....	....
1925	36	305	186	29	....	....	....	....	....	....	....	....
1926	50	386	186	23	....	....	....	....	....	....	....	....
1927	91	711	109	28	....	....	....	....	....	....	....	....
1928	14	121	8	24	....	....	....	....	....	....	....	....
1929	10	81	11	30	....	....	....	....	....	....	....	....
1930	(f)	1	19	29	....	....	....	....	....	....	....	....
1931	....	....	2	10	....	....	....	....	....	....	....	....
1932	515	7,336	1	6	....	....	....	....	....	....	....	....
1933	625	9,376	....	7	....	....	....	....	....	....	....	....
1934	653	10,624	....	11	....	....	....	....	....	....	....	....
1935	589	10,258	....	17	....	....	....	....	....	....	....	....
1936	771	13,385	....	18	....	....	....	....	....	....	....	....
1937	909	15,819	....	16	....	....	....	....	....	....	....	....
1938	1,075	18,598	1	20	310	37	....	....	....	....	....	....
1939	1,169	21,240	1	11	300	26	....	....	....	....	....	....
1940	1,168	24,056	2	14	207	17	....	....	....	....	....	....
1941	1,202	25,096	2	12	163	15	....	....	....	....	....	....
1942	975	20,590	2	6	82	7	....	....	....	....	....	....
1943	756	15,744	1	5	98	8	....	....	....	....	....	....
1944	349	7,250	1	6	101	8	....	....	....	....	....	....
1945	....	....	1	5	425	36	....	....	....	....	....	....
1946	....	....	(f)	8	1,192	104	....	....	....	....	....	....
1947	....	....	5	12	702	65	....	....	....	....	....	....
1948	356	7,656	146	17	1,324	148	....	....	....	....	....	....
1949	....	....	235	31	1,299	179	2	22	....	....	....	....
1950	(f)	2	272	49	985	204	10	126	....	....	....	....
1951	....	....	263	62	1,728	378	11	154	....	....	....	....
1952	395	13,143	1,369	107	2,888	709	8	115	52	102	....	....
1953	759	24,798	1,681	153	3,313	990	14	256	544	1,079	....	....
1954	418	13,230	270	97	3,527	986	27	829	583	1,157	....	....
1955	618	19,338	108	146	4,180	788	34	804	580	1,149	....	....
1956	410	12,842	888	322	8,305	1,440	55	1,271	472	936	....	....
1957	770	24,119	960	293	11,825	2,140	58	1,551	329	649	....	....
1958	208	6,511	410	166	12,944	2,920	75	2,501	439	870	88	1,011
1959	132	4,118	238	304	11,836	2,166	56	1,628	589	1,169	65	648
1960	600	18,738	229	415	16,983	3,111	79	2,224	796	1,601	89	713
1961	2,532	79,271	83	325	11,879	2,364	47	1,267	1,019	2,101	130	1,198
1962	453	12,195	45	563	14,165	2,753	108	2,945	1,052	2,209	156	1,441
1963	417	13,048	33	532	13,900	2,799	52	1,390	1,471	2,898	180	1,717
1964	385	12,045	18	1,080	8,894	1,767	27	695	1,359	2,743	259	2,571
1965	513	16,127	662	1,229	12,270	2,210	76	1,747	1,537	3,040	325	3,194
1966	833	26,147	124	1,521	8,889	1,702	104	2,404	2,615	6,967	423	4,181
1967	480	15,107	177	2,214	6,597	1,229	190	4,161	8,395	50,890	436	4,440
1968	373	11,816	58	2,330	(h)	(f)	161	3,408	14,333	104,506	455	4,645
1969	361	12,701	161	1,843	72	8	176	3,624	19,584	151,797	548	5,751

(a) From 1915, year ended 30 June. (b) Gold sold abroad before consignment is not recorded as an export until actually shipped. (c) Includes silver-lead and silver-lead-zinc ores and concentrates. (d) Includes additional premiums on sales of industrial gold. (e) Short ton = 2,000 lb. (f) Less than 500. (g) Six months ended June. (h) 700 lb.

EXTERNAL TRADE  
(S'000)

Year (a)	Imports			Exports (b)			Excess of—		Ships' stores
	Overseas	Interstate	Total	Overseas	Interstate	Total	Imports	Exports	
1850	(c)	(c)	125	(c)	(c)	44	80	....	(c)
1860	318	20	338	160	16	175	163	....	3
1870	260	167	427	348	46	394	33	....	8
1880	349	358	707	736	252	988	....	280	11
1890	1,025	724	1,749	961	369	1,330	419	....	14
1900	6,574	5,350	11,924	11,246	2,250	13,496	....	1,572	208
1907	7,175	5,871	13,046	17,157	2,499	19,656	....	6,610	154
1908	6,424	5,932	12,356	17,046	1,830	18,875	....	6,519	161
1909	6,645	6,169	12,814	13,361	4,121	17,482	....	4,668	239
1910	8,750	7,067	15,817	11,679	4,627	16,306	....	489	294
1911	8,971	8,321	17,292	18,342	2,586	20,928	....	3,637	285
1912	10,635	8,466	19,101	15,281	2,308	17,589	1,512	....	293
1913	10,815	8,970	19,785	10,204	7,726	17,931	1,854	....	326
1914 (d)	5,112	4,256	9,368	5,788	4,474	10,262	....	894	157
1915	7,972	8,630	16,603	6,242	4,177	10,419	6,184	....	286
1916	8,338	9,628	17,966	8,769	6,711	15,480	2,486	....	601
1917	8,773	9,997	18,770	9,291	19,488	28,779	....	10,009	587
1918	5,011	10,288	15,298	8,521	2,783	11,303	3,995	....	311
1919	6,281	9,767	16,048	18,886	2,323	21,209	....	5,161	637
1920	9,918	14,819	24,737	28,918	2,392	31,311	....	6,574	827
1921	14,439	15,239	29,678	20,790	2,724	23,514	6,165	....	1,004
1922	8,616	15,459	24,076	21,594	4,522	26,116	....	2,041	1,141
1923	13,001	14,555	27,555	19,359	2,252	21,611	5,944	....	599
1924	13,325	15,363	28,688	24,825	2,928	27,753	935	....	493
1925	16,053	16,095	32,148	25,719	2,623	28,342	3,806	....	987
1926	15,792	17,133	32,925	25,223	2,876	28,100	4,826	....	1,064
1927	18,894	17,858	36,752	26,135	2,810	28,946	7,806	....	1,358
1928	18,023	18,553	36,575	32,505	2,674	35,179	3,519	....	1,302
1929	18,906	21,201	40,108	30,603	2,411	33,014	7,094	....	1,358
1930	17,758	19,805	37,563	32,009	2,213	34,223	3,341	....	1,316
1931	9,165	13,639	22,804	33,306	1,550	34,856	....	12,052	1,095
1932	6,926	15,854	22,780	29,633	1,826	31,459	....	8,679	1,133
1933	9,542	16,740	26,282	28,037	1,916	29,953	....	3,671	1,122
1934	8,889	18,554	27,443	31,132	2,427	33,559	....	6,116	1,024
1935	10,203	20,290	30,493	30,002	2,650	32,652	....	2,158	1,106
1936	12,688	22,073	34,761	33,023	3,665	36,689	....	1,928	1,095
1937	14,144	24,742	38,886	34,592	6,361	40,953	....	2,067	1,029
1938	15,986	25,879	41,865	38,944	6,057	45,001	....	3,135	1,200
1939	12,275	25,329	37,604	34,149	10,815	44,964	....	7,360	1,049
1940	12,568	27,450	40,017	19,256	28,518	47,774	....	7,756	1,380
1941	9,710	27,519	37,229	16,900	30,808	47,708	....	10,479	1,971
1942	10,391	26,110	36,501	23,157	25,241	48,398	....	11,897	2,305
1943	7,383	24,803	32,186	10,625	20,117	30,741	1,445	....	1,983
1944	7,770	26,628	34,399	22,845	13,472	36,317	....	1,919	2,747
1945	9,215	26,863	36,079	24,765	11,533	36,298	....	219	2,508
1946	11,018	32,238	43,256	38,917	11,662	50,579	....	7,322	2,511
1947	18,929	42,253	61,182	46,015	11,459	57,474	3,708	....	1,966
1948	34,311	51,329	85,640	97,389	11,599	108,989	....	23,349	2,474
1949	44,075	61,182	105,258	96,982	9,495	106,477	....	1,220	4,710
1950	68,844	70,044	138,887	106,590	12,421	119,011	19,876	....	4,720
1951	80,517	95,828	176,345	197,686	18,780	216,466	....	40,122	7,249
1952	120,474	124,209	244,683	151,562	35,404	186,966	57,717	....	8,419
1953	59,748	137,213	196,961	166,286	49,659	215,945	....	18,984	10,321
1954	85,051	165,374	250,425	136,849	39,190	176,039	74,386	....	7,266
1955	101,295	182,110	283,405	137,013	47,310	184,323	99,082	....	7,865
1956	92,963	177,952	270,915	152,286	68,466	220,752	50,164	....	10,592
1957	80,423	188,680	269,103	156,599	81,545	238,144	....	29,041	12,902
1958	91,775	195,103	286,879	179,516	79,836	259,352	27,527	....	11,602
1959	89,972	202,430	292,402	174,585	68,919	243,504	....	9,482	9,482
1960	92,363	246,696	339,059	231,766	77,278	309,043	30,016	....	8,954
1961	110,531	245,474	356,005	309,332	89,922	399,254	....	43,249	10,285
1962	100,178	245,208	345,386	287,619	84,626	372,245	....	26,859	9,379
1963	112,640	313,712	426,351	246,823	91,636	338,459	87,892	....	7,904
1964	121,677	323,176	444,854	286,132	101,811	387,943	56,911	....	9,733
1965	153,540	343,899	497,439	243,078	119,954	363,033	134,407	....	9,009
1966	175,690	403,054	578,744	314,404	119,619	434,023	144,721	....	10,058
1967	159,390	474,852	634,242	421,325	116,030	537,355	96,887	....	10,936
1968	206,980	527,052	734,031	475,260	124,505	599,765	134,266	....	14,824
1969	203,533	562,312	765,846	546,366	149,892	696,258	69,588	....	14,327

(a) From 1915, year ended 30 June.

(b) Excludes ships' stores.

(c) Not available.

(d) Six months ended 30 June.

## LAND TENURE; LIVESTOCK; WOOL PRODUCTION

Year	Land alienated and land in process of alienation (a)	Land held under lease or licence (a) (b)	Livestock (c)				Wool production (d)	
			Horses	Cattle	Sheep	Pigs	Quantity	Gross value (e)
	'000 acres	'000 acres	'000 (f)	'000 (f)	'000	'000 (f)	'000 lb (g)	\$'000
1829	525	....	(f)	1	1	(f)	(g)	—
1830	633	....	(f)	2	8	(f)	(g)	—
1840	1,598	....	1	13	31	2	(g)	—
1850	1,330	(g)	3	22	128	3	(g)	—
1860	1,516	5,563	10	32	260	11	657	(g)
1870	1,465	12,239	22	45	609	13	1,788	(g)
1880	2,125	44,920	35	64	1,232	24	4,343	(g)
1890	5,334	104,742	44	131	2,525	29	6,969	(g)
1900	6,619	87,376	68	339	2,434	62	9,531	(g)
1907	13,070	160,180	113	717	3,685	53	22,014	1,750
1908	14,003	161,219	117	742	4,097	47	22,451	1,371
1909	16,252	166,858	125	793	4,732	47	30,048	2,219
1910	17,330	167,208	134	825	5,159	58	29,123	2,141
1911	19,046	169,938	140	844	5,412	56	29,644	2,184
1912	20,793	175,630	148	806	4,597	47	25,380	1,870
1913	21,363	188,547	157	834	4,421	48	25,026	1,902
1914	21,649	184,221	162	864	4,456	60	24,419	1,819
1915	22,087	189,742	163	821	4,804	58	29,713	2,607
1916	21,710	196,707	170	864	5,530	91	33,093	3,926
1917	21,561	192,437	178	927	6,384	112	40,335	4,835
1918	21,568	208,049	180	944	7,184	86	45,734	6,155
1919	21,843	245,405	175	881	6,698	58	41,594	5,369
1920	23,023	257,610	179	850	6,533	61	41,772	4,552
1921	24,232	258,504	180	893	6,506	63	43,082	4,482
1922	25,756	267,620	181	940	6,664	68	40,862	6,294
1923	27,065	262,147	182	954	6,596	61	45,285	8,665
1924	28,343	209,937	175	892	6,397	66	43,424	9,151
1925	28,902	232,992	171	836	6,862	74	48,288	6,800
1926	30,278	230,562	166	827	7,459	70	55,132	7,148
1927	31,740	234,160	165	847	8,447	60	62,702	10,170
1928	33,322	237,428	161	838	8,943	49	58,866	8,027
1929	35,399	243,724	160	837	9,557	65	67,151	5,952
1930	36,039	245,390	157	813	9,883	101	71,542	4,829
1931	36,209	216,627	156	827	10,098	121	71,614	5,007
1932	35,869	206,162	157	857	10,417	118	75,147	5,198
1933	35,547	198,325	160	886	10,322	91	78,424	9,404
1934	35,090	200,588	162	912	11,197	98	89,992	6,422
1935	34,118	203,602	160	883	11,083	98	85,707	8,886
1936	32,995	203,961	155	793	9,008	76	63,537	7,306
1937	33,003	205,059	151	740	8,732	65	64,739	5,832
1938	33,009	205,992	144	768	9,178	83	72,475	5,450
1939	32,768	205,705	139	799	9,574	150	75,400	7,581
1940	32,437	209,380	130	789	9,516	218	71,347	7,889
1941	32,110	209,958	124	840	9,773	163	77,627	8,328
1942	31,864	211,536	113	831	10,424	152	95,718	11,935
1943	31,658	212,039	107	871	11,013	164	102,759	12,741
1944	31,622	212,696	97	853	10,050	164	84,141	10,512
1945	31,719	212,331	88	834	9,766	138	82,067	10,424
1946	31,781	212,163	81	812	9,787	102	80,524	16,094
1947	32,083	213,885	75	816	10,444	83	89,528	29,277
1948	31,857	217,807	69	864	10,873	81	93,769	37,720
1949	32,280	223,691	59	865	10,923	79	92,750	47,237
1950	32,778	226,005	55	841	11,362	90	102,911	118,068
1951	33,981	(b)203,940	53	852	12,188	86	116,142	64,027
1952	34,766	205,607	50	846	12,475	76	120,726	75,121
1953	35,861	206,438	49	830	13,087	101	128,964	82,567
1954	37,237	206,566	47	861	13,411	107	124,173	67,985
1955	37,826	208,640	45	897	14,128	99	149,764	69,642
1956	38,230	216,318	45	957	14,887	140	148,374	90,283
1957	38,564	216,811	44	997	15,724	151	151,026	75,228
1958	39,259	221,763	41	1,000	16,215	115	157,358	59,407
1959	39,718	227,600	41	1,030	16,412	131	160,892	75,302
1960	40,103	227,650	40	1,100	17,151	176	182,217	73,863
1961	40,617	231,806	40	1,218	18,314	174	183,334	79,283
1962	41,468	240,037	39	1,298	18,727	131	177,176	80,071
1963	42,607	248,246	37	1,299	20,165	128	209,555	116,331
1964	43,643	246,467	37	1,258	22,392	137	200,995	93,275
1965	44,588	246,055	35	1,271	24,427	144	238,356	115,183
1966	45,416	246,038	(g)	1,357	27,370	161	263,852	121,509
1967	46,783	248,812	(g)	1,427	30,161	183	289,642	116,653
1968	48,042	249,133	(g)	1,546	32,901	220	*362,236	*158,264
1969	48,481	248,872	29	1,681	33,634	250	(h)320,000	(h)121,075

(a) From 1907 to 1968, at 30 June; for earlier years and for 1969, at 31 December. (b) Comprises allocations by Lands Department and certain leases and licences issued by Mines and Forests Departments. Apparent decrease in 1951 due mainly to revisions in records of Lands Department. (c) At 31 December for 1941 and earlier years; from 1942, the figures shown relate to 31 March in the following year. (d) Comprises shorn, dead and felmongered wool. Excludes wool exported on skins. For 1947 and earlier, year ended 31 December; figures shown for 1948 to 1964 are for the year ended 31 March in the following year. From 1965 figures relate to the year ended 30 June in the following year. (e) Figures for 1949 and 1951 to 1955 exclude distributions of profits under the 1939-1945 War-time Wool Disposals Plan aggregating \$13,869,934. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (f) Less than 500. (g) Not available. (h) Preliminary; subject to revision. \*Revised.

## AGRICULTURE

Year (a)	Total area under all crops (b)	Area and production of principal grain crops							
		Wheat				Oats		Barley	
		Area	Production			Area	Production	Area	Production
			Yield per acre	Total	Gross value				
	'000 acres	'000 acres	bushels	'000 bushels	\$'000	'000 acres	'000 bushels	'000 acres	'000 bushels
1840	3	2	20.0	33					
1850	7	4	(c)	(c)					
1860	25	14	15.3	208	(c)	1	12	2	43
1870	55	27	11.9	317		2	40	5	88
1880	64	28	9.3	257		1	21	6	89
1890	70	34	13.8	467		2	39	5	85
1900	201	74	10.4	775	310	5	86	3	29
1907	494	280	10.5	2,926	1,046	47	722	6	76
1908	585	285	8.6	2,461	2,433	59	739	7	74
1909	722	449	12.5	5,602	2,661	73	1,248	8	102
1910	855	582	10.1	5,898	2,162	62	776	3	34
1911	1,073	612	7.1	4,359	1,734	77	961	4	37
1912	1,200	793	11.6	9,169	3,209	128	2,016	6	93
1913	1,538	1,097	12.2	13,331	4,666	134	1,656	12	168
1914	1,868	1,376	1.9	2,624	1,881	96	465	7	24
1915	2,189	1,734	10.5	18,236	6,535	104	1,538	10	131
1916	2,005	1,567	10.3	16,103	6,106	122	1,689	11	134
1917	1,680	1,250	7.4	9,304	4,419	96	909	5	36
1918	1,605	1,146	7.7	8,845	4,423	141	1,500	8	81
1919	1,628	1,042	10.8	11,223	10,662	192	2,487	9	116
1920	1,805	1,276	9.6	12,248	11,023	193	2,022	11	111
1921	1,902	1,336	10.4	13,905	7,532	163	2,020	8	86
1922	2,275	1,553	8.9	13,857	6,986	214	2,262	9	108
1923	2,323	1,657	11.4	18,920	8,987	242	2,847	9	98
1924	2,711	1,868	12.8	23,887	14,532	319	4,241	12	178
1925	2,932	2,112	9.7	20,471	12,837	278	2,939	13	158
1926	3,325	2,571	11.7	31,069	17,217	235	2,716	14	128
1927	3,720	2,999	12.1	36,370	19,842	235	2,923	12	127
1928	4,259	3,344	10.1	33,790	16,473	326	3,555	14	190
1929	4,566	3,568	11.0	39,081	17,721	385	4,058	24	262
1930	4,792	3,956	13.5	53,504	12,201	275	3,293	17	185
1931	3,963	3,159	13.1	41,521	14,430	268	3,550	15	165
1932	4,263	3,389	12.3	41,792	13,554	286	3,603	14	135
1933	4,217	3,183	11.7	37,305	12,004	343	3,950	25	325
1934	3,841	2,764	9.8	26,985	10,123	409	4,244	27	238
1935	3,726	2,541	9.2	23,315	9,747	448	4,558	32	418
1936	3,852	2,575	8.4	21,549	11,902	463	3,445	40	449
1937	4,168	3,026	12.0	36,225	14,830	386	4,364	45	584
1938	4,683	3,413	10.8	36,844	8,984	426	4,668	75	946
1939	4,287	2,970	13.8	40,861	15,526	453	5,315	83	971
1940	3,988	2,625	8.0	21,060	8,648	429	3,250	66	725
1941	3,817	2,653	14.1	37,500	15,615	407	5,325	68	959
1942	2,784	1,753	11.8	20,600	10,080	342	3,612	50	533
1943	2,744	1,567	10.6	16,550	9,531	358	3,964	61	724
1944	2,756	1,516	10.5	15,929	8,319	402	3,845	76	884
1945	2,875	1,836	11.4	20,929	15,871	396	4,081	66	666
1946	3,532	2,426	9.8	23,800	22,048	425	3,661	66	519
1947	3,936	2,760	12.5	34,500	50,265	495	5,411	63	745
1948	4,102	2,868	12.6	36,250	42,122	532	6,998	64	981
1949	4,293	2,894	13.3	38,500	51,339	585	7,268	68	968
1950	4,533	3,185	15.7	49,900	65,328	586	7,914	59	925
1951	4,508	3,095	12.9	40,000	58,984	657	7,689	57	695
1952	4,637	2,999	11.8	35,458	55,194	832	10,440	107	1,742
1953	4,477	2,885	13.8	39,700	55,423	733	9,591	209	2,733
1954	5,043	2,979	11.5	34,300	43,655	874	9,585	260	2,805
1955	5,234	2,890	18.4	53,250	68,840	1,091	16,516	337	4,653
1956	5,139	2,764	11.6	32,100	44,055	1,051	10,442	344	3,751
1957	5,511	2,957	11.2	33,100	45,912	1,153	13,793	307	3,556
1958	6,015	3,292	17.5	57,650	77,639	1,330	22,585	321	5,410
1959	6,382	3,719	15.8	58,670	82,361	1,240	19,599	421	7,080
1960	6,757	4,021	15.9	63,900	92,290	1,330	21,810	541	8,496
1961	6,976	4,380	15.0	65,700	100,023	1,231	20,186	491	7,282
1962	7,327	4,804	15.1	72,500	107,023	1,177	18,572	390	6,056
1963	6,706	4,640	11.3	52,340	74,389	1,125	17,850	299	4,077
1964	7,289	5,151	12.2	63,071	88,557	1,152	14,011	303	3,701
1965	8,449	6,150	16.6	102,156	153,050	1,240	23,279	413	6,481
1966	8,558	6,347	16.3	103,195	153,157	1,204	22,117	373	6,707
1967	8,883	6,647	16.1	106,975	170,102	1,158	19,759	416	7,027
1968	9,490	7,295	15.4	112,450	*151,306	1,092	22,942	553	9,187
1969	9,676	6,788	9.8	66,700	93,988	1,139	15,463	900	12,058

(a) Figures shown for 1942 and earlier are for the year ended last day of February in the following year; those shown for 1943 and later are for the season ended 31 March in the following year. (b) Excludes meadow hay. (c) Not available. \*Revised.

## PRIMARY PRODUCTION—MISCELLANEOUS

Year	Hay (all kinds) (a)		Gold production (b)		Coal production		Average values f.o.b.	
	Area	Production	Quantity	Value (c)	Quantity	Value	Wool (greasy) per lb (d)	Wheat per bushel (e)
	'000 acres	'000 tons	'000 fine oz	\$'000	'000 tons	\$'000	cents	cents
1860	6	8	....	....	....	....	....	53.96
1870	17	21	....	....	....	....	....	....
1880	20	20	....	....	....	....	(f)	50.00
1890	23	25	20	171	....	....	....	....
1900	104	104	1,414	12,015	118	110	....	15.00
1907	131	138	1,698	14,421	142	110	7.95	39.37
1908	202	170	1,648	14,000	175	151	6.10	42.50
1909	159	195	1,595	13,553	214	182	7.38	41.25
1910	175	179	1,471	12,494	262	227	7.35	40.42
1911	344	300	1,371	11,646	250	222	7.35	34.58
1912	232	256	1,283	10,897	295	272	7.35	39.79
1913	247	279	1,314	11,163	314	307	7.58	37.08
1914	332	157	1,233	10,475	319	297	7.45	36.87
1915	290	395	1,210	10,280	287	276	(g) 6.80	(h) 69.79
1916	241	237	1,061	9,017	302	296	8.72	48.54
1917	266	267	970	8,243	327	384	11.64	46.67
1918	250	250	877	7,446	337	409	10.04	50.21
1919	327	379	734	7,498	402	521	13.01	53.75
1920	267	264	618	6,951	462	701	12.82	71.67
1921	336	369	554	5,907	469	814	10.92	73.33
1922	432	457	538	5,052	438	763	10.41	55.00
1923	330	368	505	4,464	421	738	15.24	50.42
1924	398	449	485	4,512	422	727	18.95	47.50
1925	391	355	441	3,749	437	726	20.85	60.83
1926	358	424	437	3,715	475	789	13.96	62.71
1927	357	417	408	3,469	502	816	12.84	55.21
1928	415	422	393	3,342	528	840	16.11	54.58
1929	419	428	377	3,204	545	853	13.55	50.62
1930	398	492	418	3,729	501	770	8.78	45.42
1931	381	453	511	5,996	432	672	6.70	22.92
1932	417	485	606	8,807	416	541	7.03	31.25
1933	480	512	637	9,773	458	580	7.14	30.42
1934	413	463	651	11,118	500	557	13.04	29.37
1935	494	505	649	11,404	537	636	8.04	32.08
1936	478	413	846	14,747	565	663	11.33	39.79
1937	432	450	1,001	17,488	554	681	13.47	55.21
1938	408	438	1,168	20,726	605	750	11.00	41.04
1939	396	476	1,214	23,686	558	726	8.88	24.37
1940	418	375	1,191	25,393	539	729	11.65	30.45
1941	325	414	1,109	23,703	557	779	13.02	39.43
1942	253	278	848	17,731	581	923	12.99	41.14
1943	282	314	546	11,421	532	979	14.60	41.08
1944	329	339	466	9,800	558	1,166	15.79	48.21
1945	281	287	469	10,021	543	1,146	15.53	63.40
1946	277	280	617	13,280	642	1,460	15.84	86.57
1947	229	268	704	15,151	731	1,680	20.70	131.77
1948	227	277	665	14,314	733	1,760	34.66	175.07
1949	216	272	648	15,926	751	1,944	42.73	152.70
1950	177	227	610	18,933	814	2,575	48.04	155.20
1951	174	212	628	19,451	848	3,434	119.52	169.41
1952	227	290	730	23,696	830	4,915	62.64	170.48
1953	219	294	824	26,598	886	6,146	67.15	173.02
1954	289	305	851	26,627	1,018	7,178	70.85	165.75
1955	269	384	842	26,749	904	6,179	61.41	142.12
1956	242	288	812	26,405	830	5,448	51.10	126.73
1957	339	386	897	29,102	839	5,105	65.62	130.97
1958	333	455	867	28,357	871	4,561	59.33	153.36
1959	319	433	867	28,388	911	4,713	41.67	140.88
1960	284	381	856	28,140	922	4,878	52.33	134.67
1961	294	396	872	28,584	766	3,361	44.95	135.82
1962	340	453	859	28,115	919	3,962	49.80	141.25
1963	289	389	800	26,375	902	3,970	50.52	142.34
1964	305	390	713	23,383	987	4,679	60.99	141.55
1965	291	414	659	22,381	994	4,410	54.69	140.60
1966	295	417	629	23,316	1,061	4,562	52.61	139.13
1967	318	421	576	21,690	1,062	4,765	53.28	149.35
1968	341	*500	512	19,407	1,087	4,817	45.62	139.64
1969	500	508	465	18,604	1,091	4,804	48.81	139.51

(a) See footnote (a) on preceding page. (b) Comprises gold refined at the Mint and gold contained in gold-bearing materials exported. (c) Includes amounts, totalling \$6,904,553 for the years 1952 to 1969, distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. Also includes net subsidy payments by the Commonwealth Government, under the *Gold Mining Industry Assistance Act 1954-1968*, totalling \$23,547,152 in the years 1955 to 1969. (d) From 1915 figures relate to year ended 30 June. (e) Prior to 1940 averages generally are based on exports of the previous season's wheat; from 1940 they relate to exports during the year ended 30 June. (f) Not available. (g) For six months ended 30 June. (h) Exports negligible; average Metropolitan Market price shown.

VALUE OF PRODUCTION  
(\$'000)

Year (a)	Gross value of primary production (b)							Net value of all recorded production (c) (d)		
	Agri- culture	Dairying, poultry farming and bee keeping	Pastoral and trapping (c)	Mining and quarry- ing	Forestry	Fisheries (e)	Total (b)	Primary	Manu- facturing	Total
1914 ....	6,194	1,122	4,115	11,154						
1915 ....	13,059	1,173	6,060	11,057						
1916 ....	11,779	1,383	7,340	11,937						
1917 ....	8,513	1,332	8,959	9,365						
1918 ....	9,516	1,396	9,088	8,607						
1919 ....	18,133	1,687	9,544	7,184	(f)	(f)	(f)	(f)	(f)	(f)
1920 ....	17,466	2,065	9,008	6,592						
1921 ....	13,853	2,265	8,032	5,845						
1922 ....	12,992	2,350	10,584	5,739						
1923 ....	15,076	2,483	13,027	5,446		642				
1924 ....	22,367	2,726	13,419	5,340		764				
1925 ....	19,510	2,507	11,537	5,010	4,126	970	43,661	30,140	(g) 19,222	(h) 49,362
1926 ....	24,187	2,503	11,262	4,933	3,367	580	46,833	32,512	13,814	46,326
1927 ....	26,068	2,687	14,687	4,698	2,906	516	51,563	36,228	15,380	51,608
1928 ....	23,884	2,936	13,501	4,589	2,463	561	47,933	31,961	15,937	47,898
1929 ....	24,504	3,443	10,800	4,496	2,159	544	45,945	26,746	14,976	41,722
1930 ....	17,756	3,170	8,845	4,695	1,809	485	36,761	17,266	10,562	27,828
1931 ....	20,985	3,311	8,023	6,911	1,312	427	40,969	23,822	9,212	33,034
1932 ....	20,495	3,338	8,057	9,691	1,183	430	43,193	24,714	10,124	34,838
1933 ....	19,022	3,315	13,369	10,606	1,648	406	48,366	29,976	10,889	40,864
1934 ....	16,336	3,927	9,456	11,939	2,399	373	44,430	28,175	12,570	40,745
1935 ....	17,045	3,897	12,639	12,402	2,653	372	49,008	32,352	15,008	47,360
1936 ....	18,871	4,170	11,437	15,827	3,032	465	53,801	36,447	15,893	52,341
1937 ....	21,071	4,494	10,139	18,845	2,957	592	58,100	38,821	17,125	55,945
1938 ....	17,077	4,716	9,457	22,205	2,899	561	56,916	35,976	17,551	53,527
1939 ....	23,198	4,855	11,602	25,035	2,660	562	67,911	46,344	18,055	64,399
1940 ....	14,760	5,230	11,701	26,706	3,160	539	62,096	41,065	18,034	59,098
1941 ....	22,219	5,960	12,234	24,843	2,950	479	68,685	46,459	20,201	66,660
1942 ....	18,106	7,664	16,345	18,975	3,277	255	64,622	45,248	22,906	68,154
1943 ....	18,505	7,971	18,381	12,801	3,150	347	61,155	42,495	25,023	67,518
1944 ....	20,856	8,473	15,600	11,529	3,152	330	59,940	42,276	25,920	68,196
1945 ....	26,310	8,709	16,228	11,797	3,358	438	66,840	47,842	27,653	75,495
1946 ....	32,635	8,933	22,451	15,405	3,305	635	83,363	60,351	31,497	91,848
1947 ....	64,699	9,790	37,430	17,728	3,649	1,135	134,431	107,206	36,768	143,975
1948 ....	58,785	11,964	46,771	17,543	4,024	1,379	140,467	108,182	42,948	151,130
1949 ....	69,686	12,975	59,079	19,707	4,501	1,432	167,381	131,728	52,088	183,816
1950 ....	87,752	14,155	132,420	24,175	6,741	1,649	266,891	222,046	68,441	290,487
1951 ....	86,791	18,778	80,443	26,975	8,517	2,505	224,010	171,002	85,491	256,493
1952 ....	87,127	21,289	91,099	35,969	7,155	3,286	245,924	181,123	98,383	279,505
1953 ....	86,533	22,328	102,176	40,996	7,678	3,808	263,519	194,208	110,294	304,502
1954 ....	77,164	21,762	87,770	42,651	8,116	4,383	241,846	170,351	121,912	292,262
1955 ....	109,709	22,433	89,654	41,199	10,474	4,915	278,383	200,428	139,466	339,893
1956 ....	80,170	23,240	113,162	42,735	10,305	5,563	275,176	196,749	146,884	343,633
1957 ....	87,293	23,500	94,293	44,382	11,046	6,530	267,044	183,077	150,624	333,701
1958 ....	126,672	22,838	81,764	43,595	10,903	7,818	293,590	199,991	157,524	357,515
1959 ....	131,052	24,696	100,543	46,487	10,919	8,621	322,318	223,895	172,747	396,642
1960 ....	140,003	25,917	101,630	47,103	11,082	8,569	334,304	232,468	193,262	425,730
1961 ....	148,765	26,400	105,821	48,535	11,104	10,689	351,314	247,867	196,083	443,950
1962 ....	157,948	27,387	107,656	49,415	10,877	11,219	364,503	255,821	216,422	472,243
1963 ....	123,342	28,723	149,333	47,468	11,462	10,187	370,515	266,670	230,511	497,181
1964 ....	139,426	30,884	126,612	49,306	12,093	15,218	373,539	266,726	260,637	527,363
1965 ....	215,949	32,899	158,085	53,842	12,731	15,733	489,239	363,490	288,803	652,293
1966 ....	218,206	33,022	160,843	89,512	13,300	16,525	531,408	386,372	335,788	722,160
1967 ....	234,020	35,485	159,990	157,545	14,076	21,954	623,069	440,663	388,257	828,920
1968 ....	218,643	38,801	211,991	223,819	13,465	23,717	730,436	526,846	(i)	(j)

(a) Figures generally are for the season or financial period ending in the following year. (b) Represents the estimated value of recorded production based on wholesale prices realised at the principal market. (c) In addition, the following amounts were paid as interim distribution of profits under the 1939-1945 War-time Wool Disposals Plan: in 1949, \$3,629,478; in 1951, \$3,629,478; in 1952, \$2,325,324; in 1953, \$368,104; in 1954, \$2,120,460; and in 1955, \$1,797,090. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (d) For primary production, net value of production is derived by deducting from the gross value all marketing costs and the cost of certain goods (seed, fertiliser, pickling, sprays, dips, fodder, fuel and oil, etc.) used in the process of production. For manufacturing, net value of production is the value added in the course of manufacture. It is obtained by deducting from the selling value 'at the factory' the cost of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing. (e) Includes pearling and whaling. (f) Not available. (g) Eighteen months ended 30 June 1926. (h) See footnote (g). (i) Figures not available on a basis comparable with previous years. (j) See footnote (i).



## FACTORIES (a)

Year (b)	Facto- ries	Persons em- ployed (c)	Salaries and wages (d)	Output (e)	Net pro- duction (f)	Production of selected commodities							
						Bricks (g)	Super- phos- phate (h)	Timber from local logs (i)	Bacon and ham	Butter (j)	Flour (plain)	Elec- tricity dis- tri- buted	Gas (town) pro- duced
	No.	No.	\$'000	\$'000	\$'000	'000	tons	'000 sup. ft	tons	tons	short tons (k)	million kWh	million cu ft
1897 ....	487	9,689	(/)			36,564		85,053		121	7,314		(/)
1898 ....	595	9,895				26,811		103,043		118	8,460		(/)
1899 ....	603	10,206	2,496	(/)	(/)	18,565		118,052		132	10,042		53
1900 ....	632	11,166	2,589			25,234		112,693		130	12,539		65
1907 ....	791	13,545	2,959			28,666		110,394		195	28,353		81
1908 ....	774	13,276	3,116	8,958	5,213	23,842		168,414		163	31,424		82
1909 ....	773	13,606	3,180	8,810	4,964	17,833		171,825		185	24,878		82
1910 ....	822	14,894	3,532	10,158	5,472	23,162		174,528	(/)	286	36,818		93
1911 ....	880	16,754	4,171	11,863	6,567	28,687		198,977		222	40,642	23	102
1912 ....	891	17,425	4,579	13,652	7,165	34,432		217,696		200	49,319	25	111
1913 ....	954	18,372	4,675	14,597	7,524	35,085	(/)	218,908		231	61,997	26	125
1914 ....	989	18,799	4,949	14,445	7,667	34,854		227,297		201	61,922	28	135
1915 ....	983	15,882	3,871	14,125	6,468	21,667		123,494		320	32,396	28	140
1916 ....	953	13,844	3,600	14,693	6,294	18,585		100,356		482	70,912	27	157
1917 ....	944	13,350	3,486	15,324	6,199	17,488		85,218		608	102,300	30	161
1918 ....	862	13,849	3,726	16,799	6,318	15,672		94,990	1,028	397	119,876	30	169
1919 ....	922	16,358	4,636	20,573	7,645	21,092		131,477	1,000	445	141,516	28	180
1920 ....	998	16,942	6,073	26,283	9,708	31,838		137,934	837	544	120,125	33	194
1921 ....	1,099	18,151	7,136	25,689	10,479	23,548		183,663	772	684	82,148	36	202
1922 ....	1,323	18,743	7,426	25,741	11,580	28,509		179,059	801	678	94,316	41	182
1923 ....	1,307	19,805	7,731	27,409	12,257	34,864		192,547	969	766	107,990	48	204
1924 ....	1,293	21,671	8,673	31,453	13,917	34,930		207,137	1,164	741	122,192	55	217
1926 (m)	1,170	20,667	13,175	42,890	19,222	53,336		328,935	1,875	836	190,369	100	374
1927 ....	1,216	19,403	8,303	31,343	13,814	45,204	182,621	229,195	1,123	1,100	133,919	78	294
1928 ....	1,398	20,435	9,003	33,996	15,380	52,992	199,864	227,631	1,157	1,111	127,246	84	330
1929 ....	1,469	20,913	9,351	34,909	15,937	60,568	254,977	174,324	1,089	1,617	119,550	92	362
1930 ....	1,466	19,643	8,310	33,783	14,976	47,720	276,336	159,643	1,161	2,109	120,595	102	408
1931 ....	1,455	14,619	5,774	24,707	10,562	13,630	191,137	112,484	1,300	3,171	132,090	98	424
1932 ....	1,490	13,392	4,671	22,375	9,212	15,101	144,203	57,690	1,297	3,727	131,165	120	393
1933 ....	1,499	14,810	5,083	24,655	10,124	25,673	231,245	59,254	1,542	4,224	127,574	138	389
1934 ....	1,606	16,154	5,505	25,755	10,889	31,717	167,389	96,428	1,901	4,386	122,000	152	408
1935 ....	1,658	17,769	6,222	29,283	12,570	37,552	190,627	130,497	2,035	4,992	124,130	164	446
1936 ....	1,946	20,972	7,408	35,057	15,008	50,498	209,979	154,989	2,373	4,896	118,340	195	478
1937 ....	2,032	22,712	8,315	36,626	15,893	53,270	264,457	176,321	1,941	4,751	122,723	224	507
1938 ....	2,066	23,133	8,803	39,288	17,125	57,598	279,685	176,718	1,945	6,117	125,472	250	547
1939 ....	2,129	23,211	9,147	39,097	17,551	53,062	298,180	161,315	1,881	6,542	137,553	278	561
1940 ....	2,129	22,967	9,150	40,615	18,055	43,786	238,683	152,453	2,073	6,251	140,849	306	581
1941 ....	2,056	22,734	9,441	43,650	18,034	45,505	206,161	146,847	2,288	6,352	149,925	320	629
1942 ....	1,938	23,980	10,999	47,904	20,201	34,247	156,791	146,013	2,729	6,991	135,338	314	724
1943 ....	1,799	25,813	12,956	53,475	22,906	8,926	121,144	138,878	4,106	6,446	126,274	283	860
1944 ....	1,807	28,101	14,835	58,417	25,023	6,296	117,775	121,600	4,322	6,155	159,799	279	928
1945 ....	1,931	29,146	15,228	63,481	25,920	10,003	198,092	116,330	4,971	5,676	161,690	292	1,003
1946 ....	2,280	30,256	15,768	68,046	27,653	24,150	278,892	117,995	4,573	5,604	166,791	302	1,092
1947 ....	2,615	33,806	18,210	76,540	31,497	37,758	266,332	139,842	4,603	6,956	176,726	339	1,127
1948 ....	2,788	35,967	21,471	91,252	36,768	44,986	308,274	148,695	3,955	6,974	195,497	358	1,207
1949 ....	2,925	38,354	25,856	106,835	42,948	50,378	381,013	142,285	3,553	6,966	181,466	354	1,250
1950 ....	3,023	40,733	30,586	127,956	52,088	58,943	387,115	153,813	3,542	6,769	159,495	368	1,189
1951 ....	3,111	43,761	39,316	168,862	68,441	67,312	416,997	176,207	3,558	6,797	217,345	402	1,392
1952 ....	3,267	45,097	50,769	213,143	85,491	76,884	421,511	199,447	3,680	6,705	221,846	428	1,430
1953 ....	3,424	45,188	56,687	238,620	98,383	86,043	417,727	223,325	3,693	6,480	224,330	469	1,443
1954 ....	3,523	47,459	63,181	269,174	110,294	101,240	428,314	241,011	3,448	6,142	187,958	520	1,443
1955 ....	3,727	49,314	69,476	299,169	121,912	115,412	472,787	251,493	3,316	7,145	165,767	583	1,448
1956 ....	3,871	50,108	74,413	350,293	139,466	102,359	463,413	245,138	3,231	7,404	179,362	627	1,471
1957 ....	3,935	48,748	73,833	375,272	146,884	101,209	482,049	228,427	3,054	7,462	169,535	652	1,451
1958 ....	3,941	48,462	75,870	392,525	150,624	111,082	578,781	233,173	2,952	6,807	148,148	689	1,420
1959 ....	4,125	48,417	77,464	392,405	157,524	101,521	529,799	237,779	2,955	6,166	139,702	732	1,418
1960 ....	4,279	49,651	83,285	431,165	172,747	110,359	629,040	225,461	3,177	7,376	150,774	785	1,433
1961 ....	4,334	50,666	90,255	481,140	193,262	119,998	660,501	210,316	3,163	7,661	168,237	870	1,450
1962 ....	4,418	51,033	92,840	486,988	196,083	119,868	672,256	213,948	3,500	7,483	141,103	930	1,403
1963 ....	4,492	53,435	99,880	517,899	216,422	131,176	751,574	205,835	3,837	6,963	135,911	1,020	1,401
1964 ....	4,609	55,705	108,515	555,058	230,511	155,792	863,628	218,911	3,780	6,915	143,296	1,112	1,435
1965 ....	4,734	58,097	119,978	616,422	260,637	146,057	867,205	233,254	3,983	7,762	134,378	1,241	1,458
1966 ....	4,906	60,282	134,171	678,751	288,803	140,611	1,070,455	233,747	4,288	8,095	113,665	1,372	1,483
1967 ....	5,167	63,577	153,597	765,224	335,788	163,166	1,201,433	225,735	4,580	6,426	101,109	1,596	1,560
1968 ....	5,404	67,335	175,100	887,372	388,257	207,575	1,411,674	236,174	5,091	5,914	110,692	1,846	1,778
1969 ....	(n)	(n)	(n)	(n)	(n)	274,318	1,223,385	226,193	5,417	6,222	108,140	(n)	1,998

(a) For statistical purposes a factory is defined as any establishment engaged in the processes of manufacturing, assembling, treating or repairing and in which 4 or more persons are employed during any period of the year or power other than manual is used. (b) For 1924 and earlier, calendar year; from 1927, year ended 30 June. See also note (m). (c) Average over the whole year and includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (d) Figures for 1929-30 and later years exclude amounts drawn by working proprietors. (e) Selling value 'at the factory'. (f) Value added in course of manufacture, representing sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. (g) For years prior to 1964-65, figures include all types of standard size bricks. Prior to 1925-26, they also include firebricks and blocks. From 1964-65 figures represent clay bricks only (all sizes). (h) Prior to 1948-49, figures exclude quantities produced and used in own works. From 1948-49 figures include such quantities. (i) Includes plywood veneers in terms of superficial feet and hewn timber produced by agencies other than 'Factories'. (j) For 1917 and earlier years, includes butter made on farms. (k) Short ton = 2,000 lb. (l) Not available. (m) Eighteen months ended 30 June. (n) Figures not available on a basis comparable with previous years. (o) Preliminary; subject to revision.

## CONSUMER PRICE INDEX (a)

(Base of each Index: Year 1966-67 = 100)

Year (b)	Group index numbers— Perth (Metropolitan Area)					Combined index (all groups)— Capital Cities						
	Food	Clothing and drapery	Housing	House- hold supplies and equip- ment	Miscel- laneous	Perth	Sydney	Mel- bourne	Bris- bane	Adel- aide	Hobart	Six capital cities (c)
1949 ....	38.4	50.6	36.1	60.4	45.4	44.0	44.4	43.3	43.1	45.0	43.0	43.9
1950 ....	42.5	58.3	38.2	64.6	46.6	48.0	48.1	47.1	46.6	48.4	45.8	47.6
1951 ....	48.8	66.7	42.9	71.0	50.4	53.9	54.6	53.1	52.2	54.6	51.9	53.8
1952 ....	60.8	80.8	50.2	84.2	60.8	65.6	67.4	64.7	63.8	66.8	64.0	65.9
1953 ....	69.7	84.8	57.6	90.9	67.1	72.5	73.4	71.1	69.5	73.1	70.9	72.1
1954 ....	74.0	84.8	62.0	92.7	66.8	74.6	74.5	72.5	70.9	74.7	74.4	73.5
1955 ....	76.1	84.9	68.6	92.8	66.8	76.3	75.0	72.5	71.4	75.6	74.3	74.0
1956 ....	77.4	86.0	71.3	92.7	70.8	78.3	77.5	76.8	73.8	78.1	78.1	77.0
1957 ....	80.9	87.4	71.1	95.0	78.5	81.8	82.8	81.0	77.8	81.2	82.8	81.5
1958 ....	79.7	89.6	72.5	96.0	79.4	82.4	84.0	81.3	79.4	81.8	82.9	82.3
1959 ....	80.3	90.8	75.0	96.3	79.6	83.2	84.6	82.9	82.1	83.6	84.1	83.6
1960 ....	82.5	91.7	76.9	97.3	81.1	84.8	86.5	85.3	84.2	86.2	85.6	85.7
1961 ....	86.7	93.9	81.6	97.5	84.0	87.9	89.6	89.5	87.1	89.8	90.3	89.2
1962 ....	86.1	94.7	84.3	97.6	84.0	88.2	89.9	89.8	88.4	89.5	90.7	89.6
1963 ....	86.4	95.0	86.9	97.3	84.2	88.7	90.4	89.7	88.7	89.1	90.7	89.8
1964 ....	87.4	95.7	89.8	95.7	86.2	89.8	91.4	90.4	89.6	90.2	91.7	90.6
1965 ....	91.0	96.8	92.1	96.7	90.0	92.6	94.5	94.0	93.0	93.9	94.6	94.0
1966 ....	95.2	97.9	95.4	98.3	95.3	96.1	97.7	97.5	97.5	97.0	98.0	97.4
1967 ....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1968 ....	102.9	102.1	105.8	100.7	103.2	102.9	103.2	103.7	103.3	102.9	104.6	103.3
1969 ....	104.5	104.5	112.7	102.1	105.6	105.5	106.2	106.2	105.5	105.3	106.1	106.0

(a) The index numbers shown are so designed as to measure periodically the movement in retail prices of the specified groups of items in each capital city individually. They do not provide a measure of differences in absolute price level as between capital cities, nor of comparative costs of the groups of items. (b) Year ended 30 June. (c) Weighted average.

## NEW BUILDINGS COMPLETED

Year ended 30 June—			Houses		Flats (a)		Other new buildings (b)				Total, all new buildings (b)
			Number	Value (b)	Number	Value (b)	Factories	Office premises	Education	Total, 'Other new buildings'	
1946	....	....	860	\$'000 1,452	2	\$'000 4	\$'000 144	\$'000	\$'000	\$'000 492	\$'000 1,948
1947	....	....	1,792	3,516	....	....	98			716	4,232
1948	....	....	2,771	5,784	....	....	176			872	6,656
1949	....	....	3,244	7,592	....	....	440			1,822	9,414
1950	....	....	3,509	8,974	101	194	446			1,536	10,704
1951	....	....	5,160	15,032	305	606	410	(c)	(c)	2,258	17,896
1952	....	....	6,577	24,466	215	300	1,402			4,086	28,852
1953	....	....	7,965	37,988	100	334	1,668			7,514	45,836
1954	....	....	7,627	39,768	212	834	1,734			10,968	51,570
1955	....	....	8,792	48,422	316	1,176	6,250			18,594	68,192
1956	....	....	7,760	45,084	584	2,564	3,756	842	2,162	19,708	67,356
1957	....	....	5,030	29,054	365	1,502	2,210	2,002	1,162	16,292	46,848
1958	....	....	6,196	36,526	171	712	2,526	3,906	1,110	17,286	54,524
1959	....	....	5,846	34,410	212	840	2,792	2,384	4,584	25,274	60,524
1960	....	....	5,997	35,454	263	986	2,368	1,544	5,838	23,800	60,240
1961	....	....	5,973	38,102	440	1,580	4,736	4,118	7,956	32,368	72,050
1962	....	....	6,082	39,470	265	1,342	3,038	2,902	6,014	27,260	68,072
1963	....	....	6,593	45,780	642	2,984	4,912	1,588	7,724	37,664	86,428
1964	....	....	7,276	51,774	1,295	5,596	5,384	5,996	6,226	35,498	92,868
1965	....	....	7,445	57,238	1,841	9,046	6,816	2,820	8,044	40,816	107,100
1966	....	....	7,265	58,089	1,624	9,096	9,631	10,576	8,459	62,993	130,178
1967	....	....	8,272	78,078	1,742	9,322	9,841	7,093	10,477	74,735	162,135
1968	....	....	9,858	97,370	2,392	12,577	15,061	14,608	12,051	85,456	195,403
1969	....	....	12,840	133,276	3,491	22,406	15,845	10,885	14,122	99,152	254,833

(a) Individual living units.

(b) Excludes the value of land.

(c) Not available.

## INDUSTRIAL DISPUTES; STATE BASIC WAGE; WAGE RATE INDEX NUMBERS

Year	Industrial disputes (a)				State basic wage per week (b)		Minimum wage rate index numbers (c)	
	Number of disputes	Workers involved (d)	Working days lost (man-days)		Perth (e)		Adult males (f)	
			Number	Average per worker involved	Adult males	Adult females	Weekly	Hourly
1913 ....	9	967	12,492	12.92	\$	\$		
1914 ....	18	4,409	124,175	28.16				
1915 ....	6	646	4,068	6.30				
1916 ....	24	9,100	102,109	11.22				
1917 ....	23	2,948	102,305	34.70				
1918 ....	22	4,803	22,433	4.67				
1919 ....	20	9,976	348,725	34.96	(g)	(g)		
1920 ....	45	12,013	166,614	13.87				
1921 ....	12	12,063	145,103	12.03				
1922 ....	8	806	43,472	53.94				
1923 ....	6	4,007	72,274	18.04				
1924 ....	13	3,497	66,734	19.08				
1925 ....	10	4,135	98,941	23.93			(h)	(h)
1926 ....	9	601	9,081	15.11	8.50	4.59		
1927 ....	20	3,392	23,819	7.02	8.50	4.59		
1928 ....	11	2,528	54,896	21.72	8.50	4.59		
1929 ....	4	877	2,672	3.05	8.70	4.70		
1930 ....	2	468	27,072	57.85	8.60	4.64		
1931 ....	13	3,928	24,022	6.12	7.35	3.97		
1932 ....	8	2,693	11,203	4.16	7.05	3.81		
1933 ....	10	3,920	16,896	4.31	6.92	3.74		
1934 ....	10	3,485	17,792	5.11	7.10	3.83		
1935 ....	11	3,603	71,976	19.98	7.05	3.81		
1936 ....	19	4,717	32,408	6.87	7.38	3.98		
1937 ....	12	1,665	14,397	8.65	7.49	4.04		
1938 ....	7	3,644	43,768	12.01	8.11	4.38		
1939 ....	7	1,253	14,100	11.25	8.22	4.43	35.6	32.0
1940 ....	4	3,023	7,387	2.44	8.53	4.61	36.8	33.1
1941 ....	3	303	846	2.79	9.04	4.88	39.0	35.4
1942 ....	8	1,809	8,855	4.89	9.78	5.28	47.5	37.6
1943 ....	10	2,544	38,438	15.11	10.11	5.46	42.8	38.8
1944 ....	30	11,028	89,984	8.16	9.99	5.39	42.6	38.6
1945 ....	16	3,802	32,491	8.55	10.01	5.41	42.6	38.7
1946 ....	11	6,363	69,634	10.94	10.21	5.51	43.6	39.5
1947 ....	7	1,766	6,070	3.44	11.08	5.98	48.4	44.1
1948 ....	9	2,356	7,836	3.33	12.16	6.57	53.9	53.9
1949 ....	16	5,661	26,287	4.64	13.59	7.34	59.6	59.7
1950 ....	15	1,952	5,728	2.93	16.65	9.41	71.0	71.1
1951 ....	10	4,179	5,101	1.22	20.57	13.37	85.5	85.7
1952 ....	21	19,156	127,826	6.67	23.85	15.50	97.5	97.7
1953 ....	11	3,665	4,977	1.36	24.65	16.02	100.4	100.7
1954 ....	15	5,494	21,651	3.94	24.65	16.02	101.7	101.9
1955 ....	16	9,849	9,582	0.97	25.24	16.41	106.3	106.6
1956 ....	14	11,121	31,944	2.87	26.52	17.23	110.8	111.0
1957 ....	14	5,352	3,068	0.57	27.28	17.72	113.9	114.1
1958 ....	20	11,007	2,970	0.27	27.34	17.78	114.7	114.9
1959 ....	20	11,247	11,243	1.00	28.15	18.30	120.7	120.8
1960 ....	43	25,684	27,342	1.06	29.46	22.09	126.8	127.1
1961 ....	22	9,687	23,233	2.40	29.88	22.41	128.8	129.0
1962 ....	28	8,363	6,300	0.75	29.88	22.41	129.5	129.7
1963 ....	28	42,584	31,969	0.75	30.15	22.61	132.8	133.0
1964 ....	26	6,165	7,148	1.16	31.12	23.34	137.5	137.6
1965 ....	33	12,611	10,020	0.79	31.96	23.97	143.4	143.5
1966 ....	25	2,876	6,239	2.17	33.50	25.13	153.6	153.8
1967 ....	26	5,071	5,994	1.18	(i)	(i)	159.6	159.9
1968 ....	70	18,684	21,762	1.16	35.45	27.08	169.0	168.7
1969 ....	104	59,102	101,383	1.72	36.45	27.88	(j) 179.5	(j) 179.3

(a) Excludes disputes involving cessation of work of less than 10 man-days. Details of the number of disputes and workers involved in disputes which commenced in any year and were still in progress during the following year are included in the figures for both years. (b) At 31 December. (c) End of December. Base: weighted average wage rate for Australia, 1954 = 100.

(d) Includes workers indirectly involved, i.e. those thrown out of work at an establishment where a stoppage occurred but not themselves parties to the dispute. (e) The rates shown for 1964 and later apply uniformly throughout the State. (f) Excludes workers in rural industry. (g) The first State basic wage operated from the beginning of the first pay-period commencing on or after 1 July 1926. (h) Not available. (i) Special loading of 60 cents a week added to award rates for adult males and adult females operative from the beginning of the first pay-period commencing on or after 1 July 1967. Loading increased to \$1.95 operative from the beginning of the first pay-period commencing on or after 25 October 1968 until 22 November 1968 when loading was absorbed in basic wage. (j) Preliminary; subject to revision.

## APPENDIX

## CHAPTER III—CONSTITUTION AND GOVERNMENT

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## THE FEDERAL PARLIAMENT

Elections for the Senate were held on 21 November 1970. The following tables show the Western Australian membership of the Senate as from 1 July 1971 as a result of the election, and also the electors enrolled and the votes recorded.

## WESTERN AUSTRALIAN MEMBERS OF THE SENATE

Due to retire on 30 June 1974					Due to retire on 30 June 1977						
Name					Political party	Name					Political party
Prowse, E. W.	....	....	....	....	C.P. Lib.	Cant, H. G. J.	....	....	....	A.L.P.	
Sim, J. P.	....	....	....	....	A.L.P.	Drake-Brockman, T. C., D.F.C.	....	....	....	C.P.	
Wilkinson, L. D.	....	....	....	....	A.L.P.	Durack, P. D.	....	....	....	Lib.	
Willesee, D. R.	....	....	....	....	A.L.P.	Negus, S. A.	....	....	....	Ind.	
Withers, R. G.	....	....	....	....	Lib.	Wheeldon, J. M.	....	....	....	A.L.P.	

A.L.P. = Australian Labor Party. C.P. = Australian Country Party. Ind. = Independent.  
Lib. = Liberal Party of Australia.

## SENATE—ELECTION OF 21 NOVEMBER 1970

Electoral division	Electors enrolled	Primary votes recorded						Number of voters	
		Liberal Party of Australia	Australian Country Party	Australian Labor Party	Australian Democratic Labor Party	Independent	Informal	Total	Per cent of enrolled electors
Canning ....	56,597	9,090	12,044	19,216	2,425	6,348	4,056	53,179	93.96
Curtin ....	52,970	17,744	4,620	14,102	2,567	7,662	3,047	49,742	93.91
Forrest ....	50,292	12,232	7,030	19,153	2,685	3,814	3,205	48,119	95.68
Fremantle ....	60,135	12,165	5,434	26,286	2,202	6,164	3,920	56,171	93.41
Kalgoorlie ....	46,459	10,399	4,011	17,648	2,405	2,611	3,533	40,607	87.40
Moore ....	50,568	7,758	11,608	16,820	2,194	5,658	3,355	47,393	93.72
Perth ....	58,016	13,325	4,540	22,264	3,114	5,340	5,299	53,882	92.87
Stirling ....	61,704	14,658	4,915	24,126	3,032	6,757	4,152	57,640	93.41
Swan ....	60,325	12,519	5,214	25,033	3,314	5,590	4,595	56,265	93.26
Total, Western Australia ....	497,066	109,890	59,416	184,648	23,938	49,944	35,162	462,998	93.15

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### THE STATE PARLIAMENT

Under the *Electoral Act Amendment Act (No. 2), 1970* the qualifying age for enrolment as an elector for both the Legislative Council and the Legislative Assembly was reduced from twenty-one years of age to eighteen years of age. The Act operated for the first time at the conjoint election for the Legislative Council and the Legislative Assembly held on 20 February 1971.

At this election, the Australian Labor Party, led by the Honourable J. T. Tonkin was elected to office, with a majority in the Legislative Assembly of one seat. The members of the Ministry took the oath of office on 3 March 1971. The names of the Ministers and the portfolios held by them are shown in the following list.

#### THE MINISTRY FROM 3 MARCH 1971

Name of Minister	Title of office
Hon. John Trezise Tonkin, M.L.A. ....	Premier and Minister for Education, Environmental Protection and Cultural Affairs
Hon. Herbert Ernst Graham, M.L.A. ....	Deputy Premier and Minister for Industrial Development and Decentralisation, and Town Planning
Hon. Thomas Daniel Evans, M.L.A. ....	Treasurer and Minister for Forests and Tourism
Hon. William Francis Willesee, M.L.C. ....	Minister for Community Welfare, and Leader of the Government in the Legislative Council
Hon. John Dolan, M.L.C. ....	Minister for Police and Transport
Hon. Donald George May, M.L.A. ....	Minister for Mines and the North-West
Hon. Colin John Jamieson, M.L.A. ....	Minister for Works, Water Supplies and Electricity
Hon. Hywel David Evans, B.A., M.L.A. ....	Minister for Lands, Agriculture and Immigration
Hon. Ronald Davies, M.L.A. ....	Minister for Prices Control, Consumer Protection, Health, and Fisheries and Fauna
Hon. Alexander Donald Taylor, B.A., M.L.A. ....	Minister for Housing and Labour
Hon. Ronald Edward Bertram, A.A.S.A., M.L.A. ....	Attorney General and Minister for Railways
Hon. Robert Henry Claude Stubbs, M.L.C. ....	Minister for Local Government and Chief Secretary

Results of the election of 20 February 1971 in relation to the Legislative Council and Legislative Assembly are given on following pages. Newly-elected members of the Legislative Council took office on 21 May 1971, the same date as the retiring members vacated their seats under the provisions of the *Constitution Acts Amendment Act, 1899-1969*. Membership of the Legislative Council resulting from the election of 20 February 1971 is therefore shown as at 21 May 1971 in the list on page 546.

### Legislative Council

The composition of the Legislative Council as a result of the election of 20 February 1971 is shown below. On the same date, a by-election was held for the North Province seat formerly held by the Hon. H. C. Strickland who was due to retire in 1974 but resigned as from 31 December 1970 owing to ill health. Vacancies caused by the deaths of the Hon. E. C. House, D.F.C., D.F.M. (1 January 1971) and the Hon. F. R. H. Lavery (12 January 1971) were filled by the general election, the due date for retirement in both cases being 21 May 1971.

The elections resulted in an increase of one in the number of seats in the Legislative Council held by The Liberal Party of Australia (Western Australian Division) Incorporated and a decrease of one in those held by the Country Party. The strength of the Australian Labor Party in the Council remained unchanged.

#### MEMBERS OF THE LEGISLATIVE COUNCIL AT 21 MAY 1971

Name	Political party	Electoral province
DUE TO RETIRE IN 1974 (a)		
Berry, Hon. G. W. ....	Lib.	Lower North
Claughton, Hon. R. F., B.A. ....	A.L.P.	North Metropolitan
Diver, Hon. L. C. ....	C.P.	Central
Dolan, Hon. John ....	A.L.P.	South-East Metropolitan
Hunt, Hon. J. L. (b) ....	A.L.P.	North
Logan, Hon. L. A. ....	C.P.	Upper West
MacKinnon, Hon. G. C. ....	Lib.	Lower West
Medcalf, Hon. I. G., E.D., LL.B. ....	Lib.	Metropolitan
Stubbs, Hon. R. H. C. ....	A.L.P.	South-East
Thompson, Hon. Ronald ....	A.L.P.	South Metropolitan
Thompson, Hon. S. T. J. ....	C.P.	Lower Central
Thomson, Hon. J. M. ....	C.P.	South
White, Hon. F. R. ....	C.P.	West
Willesee, Hon. W. F. ....	A.L.P.	North-East Metropolitan
Willmott, Hon. F. D. ....	Lib.	South-West
DUE TO RETIRE IN 1977 (a)		
Abbey, Hon. C. R. ....	Lib.	West
Baxter, Hon. N. E. ....	C.P.	Central
Dans, Hon. D. K. ....	A.L.P.	South Metropolitan
Dellar, Hon. S. J. ....	A.L.P.	Lower North
Elliott, Hon. Lyla D. ....	A.L.P.	North-East Metropolitan
Ferry, Hon. V. J., D.F.C. ....	Lib.	South-West
Griffith, Hon. A. F. ....	Lib.	North Metropolitan
Griffiths, Hon. C. E. ....	Lib.	South-East Metropolitan
Heitman, Hon. Jack ....	Lib.	Upper West
Leeson, Hon. R. T. ....	A.L.P.	South-East
McNeill, Hon. Neil, B.Sc. (Agric.) ....	Lib.	Lower West
Perry, Hon. T. O. ....	C.P.	Lower Central
Williams, Hon. R. J. L., B.A. ....	Lib.	Metropolitan
Withers, Hon. W. R. ....	Lib.	North
Wordsworth, Hon. D. J. ....	Lib.	South

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = The Liberal Party of Australia (Western Australian Division) Incorporated.

(a) Section 8 of the *Constitution Acts Amendment Act, 1899-1969* provides that a retiring member shall vacate his seat on 21 May in the year of retirement. (b) Elected at a by-election held on 20 February 1971 to fill the vacancy caused by the resignation of the Hon. H. C. Strickland as from 31 December 1970.

### The Legislative Assembly

The following table shows the composition of the Legislative Assembly as a result of the election of 20 February 1971.

#### MEMBERS OF THE LEGISLATIVE ASSEMBLY AFTER GENERAL ELECTIONS OF 20 FEBRUARY 1971

Name	Political party	Electoral district
Bateman, Thomas Henry	A.L.P.	Canning
Bertram, Hon. Ronald Edward, A.A.S.A.	A.L.P.	Mount Hawthorn
Bickerton, Arthur William	A.L.P.	Pilbara
Blaikie, Barry Roy, (a)	Lib.	Vasse
Brady, John Joseph	A.L.P.	Swan
Brand, Hon. Sir David, K.C.M.G.	Lib.	Greenough
Brown, James McMillan (a)	A.L.P.	Merredin-Yilgarn
Burke, Terence Joseph	A.L.P.	Perth
Cook, Wyndham Truran	A.L.P.	Albany
Court, Hon. Charles Walter Michael, O.B.E.	Lib.	Nedlands
Coyne, Peter Joseph Aloysius (a)	Lib.	Murchison-Eyre
Dadour, Gabriel Thomas (a)	Lib.	Subiaco
Davies, Hon. Ronald	A.L.P.	Victoria Park
Evans, Hon. Hywel David, B.A.	A.L.P.	Warren
Evans, Hon. Thomas Daniel	A.L.P.	Kalgoorlie
Fletcher, Harry Arthur	A.L.P.	Fremantle
Gayfer, Harry Walter	C.P.	Avon
Graham, Hon. Herbert Ernst	A.L.P.	Balcatta
Grayden, William Leonard	Lib.	South Perth
Harman, John Joseph	A.L.P.	Maylands
Hartney, Thomas Augustine (a)	A.L.P.	Boulder-Dundas
Hutchinson, Hon. Ross, D.F.C.	Lib.	Cottesloe
Jamieson, Hon. Colin John	A.L.P.	Belmont
Jones, Thomas Henry	A.L.P.	Collie
Lapham, Stanley Edward, A.A.S.A.	A.L.P.	Karrinyup
Lewis, Hon. Edgar Henry Mead	C.P.	Moore
Manning, Iven Wemyss	Lib.	Wellington
Manning, William Allan, A.A.S.A., A.C.I.S.	C.P.	Narrogin
May, Hon. Donald George	A.L.P.	Clontarf
McIver, Kenneth Finlay	A.L.P.	Northam
McPharlin, Walter Raymond	C.P.	Mount Marshall
Mensaros, Andrew	Lib.	Floreat
Moller, James (a)	A.L.P.	Toodyay
Nalder, Hon. Crawford David	C.P.	Katanning
Norton, Daniel	A.L.P.	Gascoyne
O'Connor, Hon. Raymond James	Lib.	Mount Lawley
O'Neil, Hon. Desmond Henry	Lib.	East Melville
Reid, David Donald (a)	C.P.	Blackwood
Ridge, Keith Alan	Lib.	Kimberley
Runciman, Ewart	Lib.	Murray
Rushton, Edgar Cyril	Lib.	Dale
Sewell, William Hawkins	A.L.P.	Geraldton
Stephens, Matthew Ernest (a)	C.P.	Stirling
Taylor, Hon. Alexander Donald, B.A.	A.L.P.	Cockburn
Thompson, Ian David (a)	Lib.	Darling Range
Toms, John Mervin	A.L.P.	Ascot
Tonkin, Arthur Raymond, B.A., Dip. Ed. (a)	A.L.P.	Mirrabooka
Tonkin, Hon. John Trezise	A.L.P.	Melville
Williams, Maurice Clifford	Lib.	Bunbury
Young, Raymond Laurence (a)	Lib.	Wembley
Young, William Gordon	C.P.	Roe

#### SUMMARY

Australian Labor Party (A.L.P.)	26
Country Party (C.P.)	8
The Liberal Party of Australia (Western Australian Division) Incorporated (Lib.)	17

(a) New member.

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### **Overseas Representation in Western Australia**

Mr Tsukao Kawabata succeeded Mr Kumao Okazaki as Consul-General for Japan in May 1971.

At 14 June 1971, the position of Consul for Finland was vacant following the death of Mr A. J. Shears on 17 May 1971.

New addresses for the Consulates of Belgium, Guatemala and Yugoslavia are as follows:

Belgium—Law Chambers, Cathedral Square, Perth 6000.

Guatemala—28 Warralong Crescent, Mount Lawley 6050.

Yugoslavia—24 Colin Street, West Perth 6005.

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### **State Representation Overseas**

On 24 February 1971 the Honourable W. S. Bovell was appointed Agent General for Western Australia in the United Kingdom for a period of three years from 17 March 1971 or such longer period as may be arranged. He succeeds the Honourable G. P. Wild, M.B.E.

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### **Local Government Districts**

In the period 1 January 1969 to 30 April 1971, the following changes in the names or designations of local government areas occurred.

The name of the Shire of Upper Blackwood was changed to the Shire of Boyup Brook with effect from 30 May 1969.

The name of the Shire of Kalgoorlie was altered to the Shire of Boulder, with effect from 12 December 1969. (The district of the Town of Boulder had been previously abolished, with effect from 15 August 1969, and the outlying land which formerly comprised the Town of Boulder was annexed to the Shire of Kalgoorlie, with effect from 18 August 1969.)

The Shire of Bridgetown was united with the Shire of Greenbushes to form one municipality named the Shire of Bridgetown-Greenbushes, with effect from 26 March 1970.

The Town of Midland was united with the Shire of Swan-Guildford to form one municipality named the Shire of Swan, with effect from 1 April 1970.

The name of the Shire of Donnybrook was changed to the Shire of Donnybrook-Balingup, with effect from 17 July 1970. (The Shire of Donnybrook had been previously united with the Shire of Balingup to form one municipality named the Shire of Donnybrook, with effect from 26 March 1970.)

The designation and name of the Shire of Perth were changed to the City of Stirling, with effect from 24 January 1971.

The designation of the Shire of Canning was changed to the Town of Canning, with effect from 24 January 1971.

The designation of the Shire of Cockburn was changed to the Town of Cockburn, with effect from 24 January 1971.

As a result of these changes there were, at 30 April 1971, 7 Cities, 12 Towns and 121 Shires in Western Australia.



## CHAPTER VIII—PRODUCTION

## PART 1—PRIMARY PRODUCTION

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**Classification of Rural Holdings**

The tables in this section are a selection of the data available on the principal characteristics of rural holdings as disclosed by the 1968-69 Agricultural and Pastoral Census.

**HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO  
TYPE OF ACTIVITY AND AREA—SEASON 1968-69**

Type of activity	Area of wheat for grain (acres)									Total
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	
Sheep—Cereal grain ....	242	459	515	594	598	1,110	1,130	1,199	295	6,142
Sheep ....	535	136	51	18	7	2	....	....	....	749
Cereal grain ....	10	67	111	121	131	214	319	649	386	2,008
Cattle (meat production) ....	9	3	2	....	1	....	1	1	....	17
Cattle (milk production) ....	....	....	....	....	....	....	....	....	....	....
Vineyards ....	....	....	....	....	....	....	....	....	....	....
Fruit (other than vine) ....	....	....	....	....	....	....	....	....	....	....
Vegetables—Potatoes ....	....	....	....	....	....	....	....	....	....	....
Other and mixed ....	2	1	....	....	....	....	....	....	....	3
Poultry ....	18	5	1	....	....	....	....	1	....	25
Pigs ....	4	4	2	....	2	....	....	....	....	12
Other ....	67	46	30	22	11	10	14	4	....	204
Multi-purpose ....	....	....	....	....	....	....	....	....	....	....
Total, classified holdings	887	721	712	755	750	1,336	1,464	1,854	681	9,160
Unclassified holdings—	....	....	....	....	....	....	....	....	....	....
Sub-commercial ....	69	7	....	....	....	....	....	....	....	76
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	956	728	712	755	750	1,336	1,464	1,854	681	9,236

**HOLDINGS GROWING BARLEY FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE  
SOWN AND SIZE OF HOLDING—SEASON 1968-69**

Size of holding (acres)	Area of barley for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	Total	
1- 49 ....	2	....	....	....	....	....	....	....	....	2	3,754
50- 99 ....	5	....	....	....	....	....	....	....	....	5	656
100- 149 ....	9	....	....	....	....	....	....	....	....	9	655
150- 199 ....	4	....	....	....	....	....	....	....	....	4	559
200- 299 ....	9	1	....	....	....	....	....	....	....	10	985
300- 399 ....	8	1	....	....	....	....	....	....	....	9	811
400- 499 ....	10	3	....	....	....	....	....	....	....	13	665
500- 599 ....	19	4	....	....	....	....	....	....	....	23	550
600- 699 ....	27	6	....	....	1	....	....	....	....	34	498
700- 799 ....	30	6	....	....	....	....	....	....	....	36	387
800- 899 ....	35	2	1	....	....	....	....	....	....	38	372
900- 999 ....	40	9	4	1	1	....	....	....	....	55	399
1,000-1,999 ....	194	67	17	6	....	2	....	....	....	286	1,446
1,400-1,999 ....	346	168	36	14	2	1	....	....	....	567	1,960
2,000-2,999 ....	495	310	128	31	18	10	....	....	....	992	3,166
3,000-3,999 ....	305	199	106	42	17	8	4	2	....	683	2,277
4,000-4,999 ....	157	140	74	32	19	15	4	2	....	443	1,464
5,000-9,999 ....	151	149	120	59	37	32	11	5	....	564	1,555
10,000 and over ....	29	23	21	19	10	19	6	11	2	140	845
Total ....	1,875	1,088	507	204	105	87	25	20	2	3,913	23,004

**HOLDINGS WITH SHEEP FLOCKS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
AND SIZE OF FLOCK—SEASON 1968-69**

Type of activity	Size of sheep flock (numbers)									Total
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over	
Sheep—Cereal grain ....	23	73	174	487	880	1,284	1,578	1,218	506	6,223
Sheep ....	9	97	188	279	404	517	711	858	739	3,802
Cereal grain ....	118	98	124	197	222	169	106	35	7	1,076
Cattle (meat production) ....	289	72	58	54	40	19	19	5	4	560
Cattle (milk production) ....	262	20	10	6	4	1	1	....	....	304
Vineyards ....	17	1	....	....	....	....	....	....	....	18
Fruit (other than vine) ....	95	25	21	16	7	7	1	....	....	172
Vegetables—Potatoes ....	38	8	1	7	4	4	....	....	....	62
Other and mixed ....	8	1	....	3	....	....	....	....	....	12
Poultry ....	28	....	....	3	1	....	....	....	....	32
Pigs ....	56	4	3	4	3	2	....	2	....	74
Other ....	8	3	8	2	6	1	5	2	....	35
Multi-purpose ....	61	43	56	56	60	67	74	31	11	459
Total, classified holdings	1,012	445	643	1,114	1,631	2,071	2,495	2,151	1,267	12,829
Unclassified holdings— Sub-commercial ....	652	93	....	....	....	....	....	....	....	745
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	1,664	538	643	1,114	1,631	2,071	2,495	2,151	1,267	13,574

**HOLDINGS WITH PIG HERDS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
AND SIZE OF HERD—SEASON 1968-69**

Type of activity	Size of pig herd (numbers)									Total
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	
Sheep—Cereal grain ....	86	112	112	117	244	228	167	414	153	1,633
Sheep ....	48	54	51	38	68	66	42	93	36	496
Cereal grain ....	18	25	21	35	48	47	46	119	89	448
Cattle (meat production) ....	14	13	12	8	6	6	5	10	5	79
Cattle (milk production) ....	47	45	25	33	49	30	28	86	49	392
Vineyards ....	....	....	1	....	....	....	....	....	....	1
Fruit (other than vine) ....	15	2	2	2	5	1	....	5	1	33
Vegetables—Potatoes ....	11	....	2	....	1	1	....	1	....	16
Other and mixed ....	5	1	1	....	1	....	1	2	2	13
Poultry ....	1	....	1	1	3	1	1	4	5	17
Pigs ....	....	....	....	....	....	5	5	69	122	201
Other ....	1	....	....	....	....	1	....	....	....	2
Multi-purpose ....	13	6	9	7	22	19	16	62	73	227
Total, classified holdings	259	258	237	241	447	405	311	865	535	3,558
Unclassified holdings— Sub-commercial ....	56	38	31	19	34	20	9	4	....	211
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	315	296	268	260	481	425	320	869	535	3,769

**HOLDINGS WITH CATTLE (MILK PRODUCTION) HERDS (a)**  
**ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1968-69**

Type of activity	Size of cattle herd (milk production) (numbers)									Total
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	
Sheep—Cereal grain ....	252	11	2	2	....	....	....	....	....	267
Sheep ....	107	2	7	6	4	4	3	....	....	133
Cereal grain ....	26	....	1	1	....	....	....	....	....	28
Cattle (meat production) ....	62	4	9	14	17	17	12	10	9	154
Cattle (milk production) ....	5	4	12	55	159	240	197	313	307	1,292
Vineyards ....	2	....	....	....	....	2	....	....	....	2
Fruit (other than vine) ....	13	1	5	14	10	2	....	....	1	46
Vegetables—Potatoes ....	3	1	4	14	10	12	7	4	....	55
Other and mixed ....	4	2	....	....	3	....	1	....	....	10
Poultry ....	5	1	1	....	1	....	....	....	....	8
Pigs ....	2	....	....	....	....	....	....	....	....	2
Other ....	1	....	1	....	....	....	....	....	....	2
Multi-purpose ....	23	4	4	12	23	20	10	12	3	111
Total, classified holdings	505	30	46	118	227	295	230	339	320	2,110
Unclassified holdings—										
Sub-commercial ....	89	12	22	53	13	....	....	....	....	189
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	594	42	68	171	240	295	230	339	320	2,299

(a) Excludes holdings with no cattle for milk production other than house cows.

**HOLDINGS WITH CATTLE (MEAT PRODUCTION) HERDS**  
**ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1968-69**

Type of activity	Size of cattle herd (meat production) (numbers)									Total
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	
Sheep—Cereal grain ....	792	291	170	249	289	132	21	21	2	1,967
Sheep ....	331	193	176	321	495	317	106	64	18	2,021
Cereal grain ....	130	29	18	22	22	16	3	1	....	241
Cattle (meat production) ....	....	....	1	38	398	472	206	267	98	1,480
Cattle (milk production) ....	239	129	95	119	195	63	23	15	....	878
Vineyards ....	13	6	1	2	5	....	....	....	....	27
Fruit (other than vine) ....	65	40	29	48	63	20	7	2	....	274
Vegetables—Potatoes ....	25	19	22	37	47	45	10	1	....	206
Other and mixed ....	15	8	8	8	7	....	....	....	....	48
Poultry ....	22	12	6	5	2	1	....	....	....	48
Pigs ....	26	10	4	9	9	1	....	....	....	59
Other ....	3	6	4	....	5	2	2	....	2	24
Multi-purpose ....	43	19	41	49	118	89	28	28	2	417
Total, classified holdings	1,704	762	575	907	1,655	1,160	406	399	122	7,690
Unclassified holdings—										
Sub-commercial ....	443	276	183	253	50	2	5	....	....	1,212
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	2,147	1,038	758	1,160	1,705	1,162	411	399	122	8,902

## AUSTRALIAN INTEGRATED ECONOMIC CENSUSES, 1968-69

An important development in Australian statistics occurred with the introduction of a programme of fully integrated economic censuses as from the year 1968-69.

The integrated censuses have been a major undertaking involving the development of new concepts, definitions and procedures. For this reason, the following article is included in the Year Book to enable an understanding of the purpose and meaning of integration, and of the integrated statistics themselves.

### THE MEANING OF INTEGRATION

For the year ended June 1969 censuses of mining, manufacturing, electricity and gas production and distribution, retail trade and selected services, and wholesale trade were conducted for the first time on an integrated basis.

The manufacturing and mining censuses for 1968-69 were part of the series of regular annual censuses conducted for these industries, but the mining census was being held for the year ended June instead of the calendar year as in the past. Electricity and gas production had previously been included in the manufacturing census; for the year 1968-69 they were treated as a separate census. The retail census had been held every four or five years, the previous retail census being for the year 1961-62. Wholesale trade had not been the subject of a census before, although there had been an exploratory partial wholesale census for the year 1963-64. In future, censuses of retail and wholesale trade will be held about every five years, the other censuses annually as in the past.

The integration of these censuses meant that for the first time they were being collected on the basis of a common framework of reporting units and data concepts and in accordance with a standard industrial classification. As a result, the statistics for the industries covered by the censuses are provided with no overlapping or gaps in coverage, and in such a way that aggregates for certain important economic data such as value added, employment, salaries and wages, fixed capital expenditure and stocks can be obtained on a consistent basis for all sectors of the economy covered by the censuses.

To make this integration possible, it was necessary to revise all the forms used in previous censuses to bring the items of data to a common basis of definition in all censuses. This revision was made after extensive investigations of business record-keeping practices conducted by the Bureau over a period of years. For most businesses in the scope of the censuses—businesses which operate at one location only—this was the principal change brought about by the integration of the censuses. For businesses operating at more than one location the other principal change was that the census returns for all industries covered were collected through the head offices of the enterprises, each of which was asked to report in a consistent way for each of its establishments covered by the censuses and for the enterprise as a whole.

### PURPOSES OF INTEGRATION

The integration of the economic censuses was undertaken as a major reorganisation of a large part of the Bureau's work, designed to increase substantially the usefulness and comparability of the kinds of statistics already being collected and published, for purposes of general economic analysis and market research.

### Aggregation of Economic Data

The economic censuses of manufacturing, mining and retail trade were introduced originally (many years ago) and subsequently developed, in order to provide statistics for particular industries, with special definitions of units and data adopted to suit the requirements of users interested in statistics of those industries. (The same is true of the annual agricultural and pastoral census, but this is not among the economic censuses integrated in 1968-69.) More recently there has been a growth of interest in statistics describing activity in the economy as a whole—reflected, for example, in the post-war

development of employment and earnings statistics, surveys of capital expenditure, stocks and wages and the whole field of national accounts statistics.

For such purposes economic census statistics in the past have had serious limitations despite the fact that they covered a broad area of the whole economy. Because of the special-purpose nature of each of the censuses, there were no common definitions of data, and there was no common system of reporting units, and therefore aggregation of statistics from different censuses was not possible. As no standard industrial classification existed, industry boundaries were not defined in ways which would prevent overlapping or gaps occurring between the industrial sectors covered by the censuses. This was a further reason why aggregation across industry boundaries was not possible. For estimation of the national accounts, therefore, little use was made of the results of the economic censuses, except the agricultural census, and there was much reliance on statistics compiled from income-tax assessments. Employment and earnings statistics for the economy as a whole have been derived mainly from monthly returns from employers subject to Pay-roll Tax.

### **Benchmark Data for Surveys**

For these reasons the economic censuses in the past have provided no basis for designing or adjusting the sample surveys which supply current economic statistics from quarter to quarter, particularly those of capital expenditure and stocks which are important components of the quarterly national income and expenditure estimates. To be accurate, such statistics should be backed periodically by comprehensive benchmark data of the kind normally available only from censuses. The previous censuses of manufacturing, mining and retail trade covered large and important sectors of the whole economy, and they included many of the same broad types of data as those needed for current economic indicators. However, because of the specialised nature of the units and data concepts on which the censuses were designed, and the lack of standard industry boundaries, it was not possible to use the results of these censuses as benchmark data for improving the accuracy of the surveys.

Similarly, the employment statistics derived from the censuses could not be used to improve the accuracy of the monthly employment and quarterly earnings series. The basic benchmark for these series is the population census, but the annual manufacturing and mining censuses, and the periodical retail trade census, were potential sources of data for checking the movements of these series.

The units employed in most of the surveys and for the private sector in the employment and earnings series are employers paying Pay-roll Tax, broadly consisting of businesses (or the parts of interstate businesses operating in one State) whose pay-roll amounts to more than \$400 per week. The unit employed in the censuses is the establishment. In the manufacturing census prior to 1968-69, this was a unit engaged in manufacturing activity and employing four or more persons or using power (other than manual) in any manufacturing process. Any part of a business (or of a particular location at which a business operated) which met this definition was treated as a manufacturing establishment, and the form required that 'manufacturing activity' should exclude selling and delivery. The value of output was to be reported exclusive of selling and delivery costs and employment was to exclude sales and delivery staff. The retail census covered the retail trading activities of establishments which normally sold goods to the general public from fixed premises. It omitted any wholesaling, manufacturing or other non-retailing activity carried on at the same location. Many types of repair activity, however, such as repairing of motor vehicles, shoes and watches, were included in the retail census, and were also included in the manufacturing census. The retail trade census also included any retailing activities carried on at locations primarily engaged in other activities such as wholesaling or manufacturing. The establishments from which mining census returns were collected were confined to units engaged in mining activity, including crushing and ore dressing at or near the mine. All censuses (except the retail trade census, in respect of chain stores) excluded separately-located head office staff, while including administrative staff located at the establishment. They also excluded any staff at separately-located

units providing ancillary services to the establishments, such as delivery fleet depots, research laboratories or storage warehouses.

Thus there were serious obstacles to the reconciliation of statistics from economic censuses on the one hand and the economic surveys and the employment and earnings series on the other, which would have been necessary if the censuses were to provide benchmark data and a sample framework for the surveys, and satisfactory interim data for checking the movements of the employment and earnings series.

### **National Accounts**

Like employment statistics and the surveys that have been discussed, the national accounts have to be comprehensive for the whole economy. They run across all industries and, in the industry dissections they provide, all economic activities must find a place. The national accounts are partly based on actual statistics, and partly on estimates. This will probably always be the case, but progress in national accounting requires that the part based on actual statistics should progressively increase. A major step in this direction would have been achieved if consistent and integrated statistics were available, both for censuses and surveys, from businesses themselves. The main broad aggregates required for each industry are gross product (that is, contribution to Gross National Product), wages and salaries, capital expenditure and stocks. The economic censuses were potential sources of this information.

Although it has always been desirable to have consistent figures of this kind as a basis for national accounts estimates, two developments in recent years have made the need urgent. One is the development, in response to strong demand, of quarterly estimates of national income and expenditure. Dependent as they are on the available current figures of wages and salaries, capital expenditure and stocks, the publication of these estimates in Australia has increased the significance of the lack of correspondence between the current survey-based data and the potential benchmark information available in the economic censuses, and between these and the tax-based statistics from which many of the annual estimates of national income and expenditure are derived.

The second development which has enhanced the importance of integrated economic statistics is the strong move in advanced countries towards the development of new types of national accounts: input-output tables, flow-of-funds tables and national balance sheets, and the obvious advantages of being able to present these accounts (together with the national income accounts themselves and the balance of payments) in a single co-ordinated framework. These efforts have led to the appearance of the new proposals by the United Nations Statistical Office for an integrated system of national accounts which have now been endorsed by official statisticians throughout the world. To implement proposals of this kind, the relevant national accounting concepts and frameworks must be co-ordinated, but in addition the basic data on which the estimates are based need to be fitted as closely as possible into the specified concepts and frameworks. The best hope for success in this objective is to integrate the conceptual framework in which the statistics are collected as closely as possible with the framework of the national accounts themselves.

### **Comparability of Statistics for Different Levels of Unit**

The national accounts illustrate a fact which underlies all economic statistics: that different levels of unit are appropriate for different kinds of statistics. In the case of the national accounts, statistics are required for items such as capital expenditure and stocks in some industry detail, and for items such as wages and salaries in geographical detail as well. To be classifiable in this way, such statistics should be collected and tabulated for a particular stratum of business unit, usually called the establishment. Statistics for national accounting items such as profit and interest receipts and payments, on the other hand, can only be collected and tabulated for a legal-entity type of unit, which may be broader than the establishment. Commodity statistics are needed for estimates of input-output transactions, personal consumption expenditure and aggregates at constant prices. For these statistics the unit being tabulated is narrower than the establishment; it is, so to speak, the commodity itself: for example, the tonnage of ice-cream produced, whether made

in establishments classified to the ice-cream industry class or not—although the statistics must of course be collected from a business unit. On the other hand, for studies of the sources and uses of capital funds, including overseas investment, the statistics needed are best collected and tabulated for units broader than the legal entity. This type of statistics would relate to business units of ownership and financial control, including groups of legal entities under common ownership and control. Although these examples are drawn from national accounts, there are similar relationships between types of unit and types of statistics in other forms of economic statistics.

This means that comparisons of industry detail cannot be made between statistics corresponding to different levels of unit, even if they are based on a common industry classification, unless something has been done to integrate the units at the various levels. This is one of the most important objectives of the integration of the economic censuses. It requires collecting data in such a way that reconciliation is made between the different levels of detail in each return, or set of returns, collected from each enterprise: commodity sales with establishment sales, establishment sales with enterprise sales, and so on. It also requires the facility to recast statistics collected and published for one level of unit to make them comparable with those for a higher level unit.

### **Enterprise Statistics**

The establishment as used in economic censuses is defined mainly in terms of location, rather than in terms of ownership or management. With the growth of multi-establishment enterprises, especially those cutting across several industry boundaries, there has been increasing interest in statistics about enterprises as economic entities. These are the statistics relevant for comparisons with such things as the financial performance of companies, derived from company accounts or from taxation statistics, and in studies of the competitive position of firms. Size-distributions based on establishments can give only a partial picture of the structure of industries; they have to be supplemented by size-distributions of the enterprises engaged in the industry.

The enterprise statistics needed for these purposes must relate to all forms of business units—unincorporated enterprises as well as companies. For some purposes, statistics based on operating legal entities as the unit are needed; other purposes require statistics based on groups of such legal entities operating under common ownership or control.

### **Provision for Extension of Economic Censuses into other Industries**

The problems referred to earlier which have arisen from the specialised nature of the units and data concepts used in the existing economic censuses are likely to increase with the extension of economic censuses into other industries. A census of wholesale trade could not have been introduced without close attention being paid to its boundaries with manufacturing on the one hand and retail trade on the other. The treatment of the sales branches of manufacturing enterprises had to be determined, and the treatment of wholesaling activity by retailers. Similar problems arise with the planned future introduction of a census of construction. This industry, like wholesale trade, has areas of overlapping with manufacturing which have required special attention in the new standard industrial classification, in order to avoid the possibility of gaps or overlapping.

### **Steps in Integration**

To meet the purposes of integration, as they have been described, it was therefore necessary to take four major steps, which will ultimately affect most, if not all, of the economic censuses and surveys conducted by the Bureau:

1. Standardisation of census units: defining business units at standard levels, corresponding to the strata in the business structure for which various types of economic statistics are required and can be collected; devising standard rules for identifying such business units.
2. Establishment of an integrated register of business units: identification of the standard units for all businesses to be covered by economic censuses and surveys,

and recording them in a register to be used in the running of the censuses and surveys.

3. Standardisation of the industrial classification: adoption of a common system of classification suitable for all censuses and surveys, to which all the standard business units to be covered would be classified without gaps or duplication.
4. Standardisation of data concepts: defining in common terms the basic items of data for which statistics are required across all industries covered by economic censuses and surveys, to permit comparison and aggregation.

## STANDARDISATION OF CENSUS UNITS

### Types of Unit

The business units as standardised for purposes of the integrated economic censuses are at three levels: the establishment (and associated administrative offices and ancillary units), the enterprise, and the enterprise group.

The central unit from which statistical information is collected is the *enterprise*, defined broadly as an operating legal entity. Where a number of legal entities operate as a group, owned or controlled by a single company, the enterprise is not the group as a whole, but each individual operating legal entity in the group.

The group of legal entities owned or controlled by a single company is recognised as a separate type of unit—the *enterprise group*. This is to be used, not for collection of census returns, but subsequently for aggregation of certain census data. The enterprise group, in addition, may be appropriate as the collecting unit for certain types of survey, such as overseas investment and local capital raisings, for which the enterprise would be too narrow. The census data aggregated for enterprise groups will provide a body of statistics directly comparable (when classified by industry) with the results of surveys conducted among enterprise groups.

The basic unit for which most data are to be tabulated is the *establishment*, defined in general as a unit covering all the operations carried on under the ownership of one enterprise at a single location—such as an individual factory, shop or mine. Enterprises operating more than one establishment report the data for each of their establishments on an establishment return. They report summary data for all their establishments on enterprise returns, together with some additional data for the enterprise as a whole. Enterprises operating only one establishment supply a combined establishment-enterprise return. For small businesses a special short form is used.

*Administrative offices* and *ancillary units* are units such as head offices, storage premises, transport garages and laboratories serving or administering establishments within the same enterprise and located away from them. They do not supply separate returns. If they administer or serve only one establishment their figures are included in the total for that establishment, in the establishment return. If they administer or serve more than one establishment their figures are included in the enterprise return. To enable geographical details to be published, certain figures for individual administrative offices or ancillary units are separately specified in the establishment and enterprise returns; these figures are confined to employment, wages and salaries and capital expenditure.

*Manufacturers' sales branches* located away from establishments are included among the ancillary units, but only if they are of the kind which do not distribute goods to customers from stocks held by themselves. Any which do distribute from stocks in this way are treated as establishments, to be included in the wholesale census.

The above description of the types of units used in the integrated economic censuses is necessarily abbreviated. For a more extensive description see *The Australian Standard Industrial Classification (Preliminary Edition)*, 1969, Vol. 1.



## ESTABLISHMENT OF INTEGRATED REGISTER OF BUSINESSES

**The Integrated Register**

In order to provide and maintain accurate records of the enterprises and establishments to be covered in economic censuses and surveys it was necessary to set up an *Integrated Register* of businesses. In this register the units of each business corresponding to the three standard levels—establishments (and administrative offices and ancillary units), enterprises, and enterprise groups—are identified and numbered in such a way as to record the links between the units at the different levels. The register is recorded on magnetic tapes and provides the means for operating an automated system for addressing and dispatching census forms for enterprises and establishments and for handling the subsequent receipt and processing of completed returns.

The lists recorded in the register are kept up to date by regular checks from a wide variety of sources, and periodically the information on larger companies is updated by referring listings produced from the Bureau's current records back to the companies themselves for amendment.

**Changes in the Establishment Concept**

The adoption of a new establishment concept in each of the economic censuses entails an unavoidable break in the continuity of the census statistics, in comparisons with previous years. Special analyses are being made from which it is hoped to derive some estimates of the order of magnitude of the changes, for publication along with the results of the integrated censuses. The main changes in the establishment concept affecting the continuity of statistics can be summarised as follows.

1. In general the establishment in each census now consists of the whole of each physical location, operated by one enterprise, whose main activity is within the scope of the census. There is usually one return only for each establishment, classified to the industry of its main activity. This is in contrast to the previous censuses, in which an establishment could be the part of a location engaged in an activity covered by one of the censuses, and separate returns were required, where practicable, if the activities at the location corresponded to different industries in the same census, or different censuses. From the viewpoint of businesses completing census returns, the new establishment concept requires much less apportionment of data between returns than was necessary in previous censuses.
2. A particular effect of the new concept in manufacturing statistics is that establishments in the manufacturing census now include selling and delivery activities at the location, which were formerly excluded from the scope of the factory establishment. On the other hand, the statistics of factory establishments now exclude manufacturing activity carried on as a minor activity of predominantly retail establishments, such as the making up of blinds to customers' orders, dressmaking at frock shops, etc. However, the continuity of the statistics of commodity output will not necessarily be affected by this change. Manufacturing by retailers and wholesalers is reported in the retail and wholesale trade censuses, and commodity detail for this activity is being collected, at least for the larger establishments.
3. The treatment of outlying parts of an establishment has been standardised: if the outlying part is in the same local government area it is merged with the establishment. Thus, a factory which had extended its operations to a neighbouring location for lack of space would include the extension in its return if it was in the same local government area. Similarly, if two locations in the same local government area and industry (for example, used car lots at different addresses) have common employees and combined accounts, they are treated as a single establishment.

4. Administrative offices and ancillary units located away from establishments (apart from some owned by chain stores) were formerly outside the scope of the censuses, although stocks at such locations were to be included in the manufacturing and retail trade returns. As previously mentioned, they are now included in the census return of the establishment they serve, or if they serve more than one establishment they are included in the return supplied for the whole enterprise.
5. The establishment concept used for the electricity and gas industries is an exception to the general concept. Because of the nature of their activities, the single operating location is not suitable as a basis for the establishment engaged in producing or distributing electricity or gas. The establishment unit used consists of all locations operated by the enterprise in the one State.

## STANDARDISATION OF THE INDUSTRIAL CLASSIFICATION

### Australian Standard Industrial Classification

The Australian Standard Industrial Classification (ASIC), which is a prerequisite to the integration of the economic censuses and surveys, is described in a publication of the Bureau: *Australian Standard Industrial Classification (Preliminary Edition), 1969, Vol. 1*. The classification system described in that publication defines the industries for which statistics are collected in the economic censuses, thus permitting the scope of each census to be marked out without any gaps or overlapping between them. It also defines the statistical units (establishments, administrative offices and ancillary units, enterprises, etc.) which are classified by industry, and lays down standard rules for identifying them and coding them to the industries of the classification.

Besides being used in the 1968-69 economic censuses, the ASIC will be used in other economic censuses and surveys, population censuses and surveys, and other statistics (national accounts, etc.) derived from the basic statistics. Data classified according to the ASIC can be converted to conform essentially with the International Standard Industrial Classification. It is proposed to publish summary tables of census results converted in this way, to facilitate international comparisons.

The structure of the ASIC comprises four levels. The broadest of these is the 'Division' level, which relates to wide categories such as 'Manufacturing', 'Wholesale and Retail Trade' and 'Community Services'. The structure may be illustrated by the following example. A factory mainly engaged in making aluminium window frames would be classified to:

Division	C	Manufacturing
Subdivision	31	Fabricated metal products
Group	311	Fabricated structural metal products
Class	3112	Architectural aluminium products

The fundamental concept of the ASIC is that an industry, that is an individual class, or group, etc. in the ASIC, is an entity composed of the establishments, administrative offices and/or ancillary units which have been classified to it.

Each ASIC class is defined in terms of a specified range of economic activities, designated as primary to it. (Manufacturing aluminium window frames, as shown in the above example, is primary to class 3112.) Similarly, each ASIC group is defined in terms of the economic activities designated as primary to the classes within that group, and so on. An establishment which is engaged mainly in economic activities which have been designated as primary to a particular class is classified to that class whether or not that establishment is also engaged in other 'secondary' activities. An administrative office or ancillary unit will be classified to an ASIC class according to the predominant industry of the establishments it administers or serves, while an enterprise will be classified according to the predominant industry of its establishments and ancillary units.

## STANDARDISATION OF DATA CONCEPTS: ESTABLISHMENT STATISTICS

In previous economic censuses much of the data asked for in one census was broadly similar to data asked for in others. All asked for employment, and the manufacturing and mining censuses asked for value of output and the cost of materials, fuels, etc. used, from which value added could be derived—somewhat similar to the gross margin that could be derived in the retail trade census by subtracting the value of purchases from the value of sales and adjusting for stock changes. Value of stocks was asked for in manufacturing and retail trade censuses, and fixed capital expenditure (in the form of 'additions and replacements' to fixed tangible assets) was asked for in manufacturing and mining censuses.

With integration of the economic censuses it became necessary to seek a common conceptual basis for the items of data of this kind, not merely in order to suit the needs of the Bureau in compiling national accounts estimates or deriving benchmark statistics for monthly or quarterly surveys or employment and earnings series, although these were important reasons for doing so. It was also necessary to find such a common basis in order to enable the returns to be completed more readily and accurately by the enterprises responsible for them. As the enterprise is the basic unit from which statistics are collected in the censuses, the data for the establishment returns had to be capable of being drawn from the records of the enterprise in such a way that they could be reconciled with the corresponding totals for the enterprise as a whole. The establishment returns for a single enterprise with more than one establishment might belong to different economic censuses, but they would need to balance with a single enterprise return for the whole enterprise. This enterprise return is common to all industries and all economic censuses.

The key items of data entering into this reconciliation, and therefore requiring a common conceptual basis, are: turnover, stocks, purchases and selected expenses, employment, salaries and wages, and fixed capital expenditure.

These key items also encompass the main benchmark data required for improving the accuracy of quarterly sample surveys and employment and earnings series, and the data needed from establishments for consistent estimating of the main national accounts aggregates.

**Value Added**

The fundamental measure of the 'magnitude' or importance of an establishment, in economic censuses, is its value added. This measure can be aggregated for all establishments and industries covered by the censuses without duplication and is the concept generally accepted throughout the world as the measure of the relative importance of industries in economic censuses. It means the value added to materials in manufacturing, the value of minerals mined less that of the materials used in mining, and the value added to merchandise in retail and wholesale trading.

In the integrated economic censuses the common measure of value added in all industries is as follows:

value added *equals* turnover *plus* increase in stocks *minus* purchases, transfers in, and selected expenses.

'Transfers in' are goods transferred from another establishment of the same enterprise, either for further processing or for sale. ('Transfers out' are included in turnover.) The 'selected expenses' do not include salaries and wages, interest, rent, depreciation, or overhead expenses usually recorded only for the enterprise as a whole. Broadly speaking, therefore, the value added is the source from which establishments derive the surplus to meet salaries and wages, interest, rent, depreciation and overhead expenses of the enterprise (that is, those not specified as 'selected expenses' on establishment forms), and to provide a contribution to the profits of the enterprise.

Value added is the concept corresponding to value of production in manufacturing and mining censuses in the past, although it is derived in a different manner. Value of

production was obtained by deducting the cost of materials, fuel, etc. used, from the value of output at the factory or mine. Further points of difference appear below in the detailed explanation of items of turnover and purchases, etc.

### Turnover

This item includes the components listed below:

Manufacturing, mining, electricity and gas censuses—

- sales of goods produced by the establishment;
- sales of goods not produced by the establishment;
- transfers of goods out to other establishments of the same enterprise;
- bounties and subsidies on production;
- all other operating income (that is, excluding revenue from rent and leasing, interest other than hire purchase interest, dividends, and sales of fixed tangible assets);
- capital work done for own use or for rental or lease.

Retail and wholesale trade censuses—

- sales of goods (owned by the enterprise);
- transfers of goods out to other establishments of the same enterprise (wholesale only);
- selling and purchasing commissions received (wholesale only);
- all other operating income (with the same exclusions as above);
- goods withdrawn from stock for own use (as fixed tangible assets, or for rental or lease).

It will be seen that, despite the differences in the terms used for its components, the concept of turnover is identical in all the integrated economic censuses. In all these censuses, similarly, the details shown in the section of the form for sales of individual commodities are required to agree with one of the items of turnover—sales of goods produced by the establishment, for factories and mines; and sales of goods (owned by the enterprise) for retail and wholesale trade. The commodity details in the manufacturing census now relate to the value of sales instead of the value of output, as formerly, although the output of individual commodities is still asked for in terms of quantities, along with the quantity and value of their sales.

In the case of the mining census, the value of output (valued at or near the mine) will be calculated or estimated, as a supplementary series, and will continue to be published.

### Stocks

The main change to statistics of stocks brought about by the integration of the censuses is due to the use of the new establishment concept: the statistics will relate to total stocks of the establishment, not merely those associated with the main activity covered by the census. Thus manufacturing and mining establishments now include in their returns any stocks of merchantable goods held, and retail establishments include any stocks of materials held for wholesaling or manufacturing. For mining there is a division in the 'finished-goods' category between 'minerals produced in this establishment' and stocks of 'other goods and minerals purchased for resale'. This is to enable a reconciliation to be made between the aggregate stocks figures and the commodity details of stocks, production and sales of minerals.

### Purchases and Selected Expenses: Manufacturing and Mining

(1) The new way of deriving value added (that is, as compared with the previous way of deriving value of production) has required that value of purchases be asked for instead of the value of materials etc. used. The commodity detail in the manufacturing census form is still in respect of usage of materials etc. but the total figure is on the basis of purchases.

(2) The value of purchases on the form is supplemented by the value of transfers in from other establishments of the enterprise.

(3) In accordance with the broadened establishment concept, purchases of goods for resale are included as well as purchases of materials for use in manufacturing or mining.

(4) Because sales by manufacturing establishments are now valued at actual sales value, whereas factory value of output as asked for in previous censuses was valued on a 'factory-door' basis excluding delivery expenses, some additional expense items are now collected. These are: 'outward freight and cartage' and 'motor vehicle running expenses'. 'Sales commission payments' is also included. These three items are among those deducted from turnover in deriving value added.

(5) In the mining census, output was formerly valued at point of sale, with transport costs shown separately, to enable value at mine to be calculated within the Bureau. In the new census the point-of-sale basis is retained for sales, but the transport cost item is replaced by the standard three items included in all censuses: outward freight and cartage, and motor vehicle running expenses. Sales commission payments are also asked for. As in the other censuses, these relate only to payments made outside the enterprise, as any employees of the mining establishment engaged in transport or selling the mine's products (with certain exceptions for major own-account rail and sea transport operations above a certain traffic limit) are treated as part of the mining establishment.

(6) Charges for commission work and subcontract work are specified as separate items of expense.

#### **Purchases and Selected Expenses: Retail and Wholesale Trade**

(1) Because of the extension of the establishment concept, purchases in the retail trade census now include goods purchased for wholesale sale as well as those for retail sale. (Similarly, the purchases item in the wholesale trade census includes purchases for retail as well as wholesale sale.)

(2) For the same reason, there are items 'purchases of materials for manufacturing' and 'charges for commission and subcontract work' in both censuses.

(3) The items 'outward freight and cartage', 'motor vehicle running expenses' and 'sales commission payments' are included for the same reasons as the corresponding items in the manufacturing and mining censuses.

(4) To complete the range of expenses of retail and wholesale establishments in order to enable value added to be derived consistently, there is a 'residual' item: 'purchases of wrapping and packaging materials, electricity and fuel, repair and maintenance expenses'.

#### **Transfer Values**

As mentioned earlier, turnover in all censuses except the retail trade census includes transfers of goods out to other establishments of the same enterprise. (Any transfers between retail establishments are provided for by having purchases reported inclusive of transfers in, and net of transfers out.) Similarly transfers in from other establishments of the same enterprise are included among the items of purchases, etc. deducted in deriving value added. Transfers, both in and out, are confined to transfers of goods. Services provided by one establishment to another in the same enterprise, in general, are not included among transfers (or sales) even if a charge is made.

In the integrated censuses, the transfer value sought is the value for which the goods would have been sold to the establishment to which they were transferred if it had been under separate ownership, *i.e.* commercial value. However, if such a transfer value cannot be given or estimated by the enterprise, actual book values are accepted and adjusted by the Bureau by a conventional method which gives all the establishments concerned a share of any surplus earned by the enterprise.

#### **Employment, salaries and wages**

The main changes made in the employment and wages and salaries part of the factory form for 1968-69 were in the direction of simplification. With the new concept of the establishment, for example, it is not necessary for manufacturers to deduct any 'non-manufacturing' employees (such as sales and delivery employees) or their earnings. All

employees are to be included, and this includes employment at any ancillary units or administrative offices serving the establishment only—employees likely to be included in the pay-roll of the establishment in any case. As mentioned earlier, separate geographical detail will be published for units of this type, including those reported on enterprise returns.

### **Rent and Leasing Expenses**

Annual rent paid has been included in the censuses of manufacturing and mining in the past, but the figures were used to estimate the capital value of rented assets, for inclusion in the statistics of the value of fixed assets, and were not published themselves.

In the 1968-69 censuses rent and leasing expenses have been included in the establishment forms for all censuses, and in the enterprise form. It is intended to publish the results, which will be of particular interest in retail and wholesale trade and in some manufacturing industries. The extension to include leasing expenses reflects interest in the growth of leasing activity.

### **Fixed Capital Expenditure**

Fixed capital expenditure has not appeared on retail trade census forms in the past, and in manufacturing and mining censuses has appeared in the form of 'additions and replacements', an item used in the year-to-year reconciliation of the value of fixed assets. In the design of the integrated census forms the opportunity was taken to ask for fixed capital expenditure in the detail needed for national expenditure estimates and survey benchmarks, and most likely to be of general use as well. It has been impossible in the past, in estimating fixed capital expenditure for national accounts, to reconcile manufacturing censuses with business surveys, or with the statistics obtained from tax sources. Differences in scope, definitions, etc. meant that the estimates could be fitted into the national accounts framework only with a great deal of uncertainty. The integration of the censuses and the surveys should do much to improve the quality of the estimates in future.

### **Value of Fixed Assets**

The manufacturing and mining censuses previously included a section on the book value of land and buildings, plant and machinery. This was dropped from the census forms for establishments in 1968-69, but included in the returns for enterprises, including those in retail and wholesale trade, as well as manufacturing and mining (and electricity and gas).

### **Gross Margin in Retail and Wholesale Trade**

Besides publishing value added in retail and wholesale trade, it is proposed to publish derived statistics of *gross margin* for these censuses, both as an absolute figure and as a percentage of sales. These would make use of specific items of sales and purchases relating to trading transactions, as distinct from manufacturing and other activities secondary to these industries.

Gross margin in retail and wholesale trade would be derived as follows:

sales, transfers out (wholesale census only), and withdrawals from stock for own use (*less* any sales or transfers out (wholesale census only) of goods manufactured by the establishment—*i.e.* owned goods only) *plus* increase in stocks *less* purchases of goods for resale and transfers in *equals* gross margin.

## **STANDARDISATION OF DATA CONCEPTS: ENTERPRISE STATISTICS**

The statistics derived for enterprises from the integrated censuses are standardised because a common enterprise form is used for multi-establishment enterprises, whatever the industry in which their establishments operate, and for single-establishment enterprises the special 'enterprises' items were common to all forms.

### Gross Product Statistics

Earlier it was said that the new integrated censuses will provide valuable data directly applicable to national accounts estimates. One of the most important items of data of this kind is gross product (measured at market prices) and gross product at factor cost.

These concepts are related very closely to value added. (Gross product at factor cost equals value added *plus* rent and leasing revenue *minus* rent and leasing charges *minus* all other expenses *minus* land tax, rates and Pay-roll Tax.) This concept differs from that at present employed in the Bureau's national accounts publications, in that it includes net rent and leasing revenue. It accords with the new United Nations' concept, and will in due course be adopted in the Australian national accounts.

The additional enterprise *expense* items needed are 'other expenses', and land tax, rates and Pay-roll Tax. These appear on the enterprise forms used in the integrated censuses.

The item 'other expenses' will probably be of some value to users of the enterprise statistics, quite apart from its purpose in the derivation of gross product. It represents an aggregate of overhead 'non-operating' expenses, all payable outside the enterprise, and each enterprise in a particular industry could usefully compare its own figure for this with the total for the industry.

Gross product at market prices can be derived from gross product at factor cost, but not without some estimation of components not directly provided by the integrated economic censuses.

### Gross Product Estimates for Establishments

For national accounting purposes it is desirable to have statistics of gross product at factor cost with establishments as the unit of tabulation, as well as the series based on enterprises. This is because the industrial and geographical detail required go beyond what is likely to be possible at the enterprise level. (Gross product by States, for example, is not available without splitting enterprises into smaller units.) To derive statistics of gross product for establishment units it is necessary to adopt conventional rules for spreading the overhead expenses of enterprises not collected on establishment returns.

### Other Enterprise Statistics

Statistics which it is expected could be published for enterprises, in suitable tabulations by industry, will include: number of enterprises; number of establishments (operated by enterprises in the industry); turnover; stocks, opening and closing; purchases and selected expenses; value added; all other expenses; land tax, rates and Pay-roll Tax; gross product at factor cost; rent and leasing expenses paid; rent and leasing revenue; wages and salaries; employer contributions to superannuation schemes; gross operating surplus; interest paid; royalties paid; interest received; royalties received; depreciation; fixed capital expenditure; value of fixed tangible assets; and employment.

### Statistics for Enterprise Groups

The choice of statistics to be published for enterprise groups is being examined. By the nature of the censuses, it will not be possible to derive consolidated statistics of such items as turnover, interest or rent. However, it should be possible to publish a useful body of statistics for enterprise groups, in suitable broad industry groupings, by aggregation of statistics of the enterprises within the scope of the censuses.

## PRELIMINARY RESULTS OF THE CENSUSES

The table below represents preliminary results of the economic censuses taken in respect of the year ended 30 June 1969. More detailed information will become available progressively and figures contained in the table may be revised.

Direct comparisons with figures for previous years are not possible because of changes in the census units, the scope of the censuses and the items of data, as outlined in the preceding sections.

ECONOMIC CENSUSES: 1968-69  
(Preliminary figures, subject to revision)

Particulars	Unit	Mining	Manu- facturing	Electricity and gas (a)	Retail	Selected Services (b)	Whole- sale
WESTERN AUSTRALIA							
Number of establishments (c) ....	No.	166	2,774	58	9,979	2,100	3,154
Persons employed (d): males ....	No.	8,925	51,770	3,447	26,922	5,698	22,795
females ....	No.	418	12,026	264	27,152	10,666	8,270
Total ....	No.	9,343	63,796	3,711	54,074	16,364	31,065
Wages and salaries (e) ....	\$m	34.0	186.8	12.5	84.5	25.0	82.1
Sales, transfers out and other operating revenue (f) ....	\$m	270.8	967.8	48.2	991.8	129.7	1,251.5
Stocks at 30 June: 1968 ....	\$m	21.1	126.4	5.0	89.8	3.4	137.1
1969 ....	\$m	30.6	140.6	6.0	97.6	4.2	156.3
Purchases, transfers in and selected ex- penses (g) ....	\$m	92.0	625.2	15.0	780.4	73.0	1,040.3
Value added (h) ....	\$m	188.2	356.8	34.2	219.2	57.5	228.3

## AUSTRALIA

Number of establishments (c) ....	No.	1,716	38,834	224	137,922	27,173	34,231
Persons employed (d): males ....	No.	53,258	969,503	64,983	398,724	99,759	258,634
females ....	No.	2,037	350,664	6,157	344,024	122,739	92,006
Total ....	No.	55,295	1,320,167	71,140	742,748	222,498	350,640
Wages and salaries (e) ....	\$m	239.8	3,996.9	279.3	1,168.2	360.2	1,004.3
Sales, transfers out and other operating revenue (f) ....	\$m	1,128.6	19,349.7	1,185.0	12,061.2	1,804.1	15,350.8
Stocks at 30 June: 1968 ....	\$m	98.1	3,204.6	97.9	1,172.9	47.6	1,693.6
1969 ....	\$m	114.3	3,447.4	106.6	1,279.6	53.2	1,851.9
Purchases, transfers in and selected ex- penses (g) ....	\$m	415.7	12,003.2	505.2	9,304.5	955.4	12,804.4
Value added (h) ....	\$m	729.2	7,589.0	688.5	2,863.4	854.3	2,704.7

## PROPORTION, WESTERN AUSTRALIA TO AUSTRALIA (PER CENT)

Number of establishments (c) ....	9.7	7.1	25.9	7.2	7.7	9.2
Persons employed (d): males ....	16.8	5.3	5.3	6.8	5.7	8.8
females ....	20.5	3.4	4.3	7.9	8.7	9.0
Total ....	16.9	4.8	5.2	7.3	7.4	8.9
Wages and salaries (e) ....	14.2	4.7	4.5	7.2	6.9	8.2
Sales, transfers out and other operating revenue (f) ....	24.0	5.0	4.1	8.2	7.2	8.2
Stocks at 30 June: 1968 ....	21.5	3.9	5.1	7.7	7.1	8.1
1969 ....	26.8	4.1	5.6	7.6	7.9	8.4
Purchases, transfers in and selected ex- penses (g) ....	22.1	5.2	3.0	8.4	7.6	8.1
Value added (h) ....	25.8	4.7	5.0	7.7	6.7	8.4

(a) Covers production and distribution. (b) Motion picture theatres, restaurants and licensed hotels, licensed clubs, laundries and dry cleaners, and hairdressing and beauty salons. (c) Operating during 1968-69. (d) At end of June 1969. Includes working proprietors and in the case of retail, unpaid helpers working at least 15 hours during the week. (e) Drawings of working proprietors are not included. (f) Sales of goods whether produced by the establishment or not, plus transfers out of goods to other establishments of the same enterprise, plus all other operating revenue from outside the enterprise, such as commission, repair and service revenue. This excludes rents, leasing revenue, interest, royalties and receipts from the sale of fixed tangible assets. (g) Purchases of materials, fuel, power, containers, etc. plus transfers in of goods from other establishments of the same enterprise, plus charges for commission and sub-contract work, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses and sales commission payments. (h) Sales, transfers out and other operating revenue, plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.



## THE DEVELOPMENT OF LOCAL GOVERNMENT IN WESTERN AUSTRALIA

The Colony of Western Australia was established in June 1829 and the first steps towards securing local government were taken as early as 1838 when an Ordinance was passed which authorised the establishment of Town Trusts and Trusts in country districts.

In the years that followed, other measures (both legislative and executive) were taken to develop the local government system in the Colony but it was not until 1871 that the foundations of the present structure of local government were laid with the passing of the *Municipal Institutions Act, 1871* and *The District Roads Act, 1871*. It is the centenary of these two Acts, in effect, which is being celebrated throughout the State in 1971.

To mark the occasion, a booklet entitled *One Hundred Years of Local Government* was produced by the Local Government Department to whom the Bureau is indebted for permission to reproduce the following edited extracts. For further information on the current position the reader is referred to the section *The Local Government System* in Chapter III.

Monetary amounts given in the extracts below are shown in the currency in use at the time. The amounts may be converted to decimal currency on the basis of: 1 pound = 2 dollars; 1 shilling = 10 cents; 1 penny =  $\frac{5}{8}$  of a cent.

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'Establishing the first forms of local government in Western Australia was a daunting task. Settlers were few, the country was strange (if not hostile), labour was short and the Colony was impoverished. Not only that, its horizons stretched far beyond the experience—even the imaginations—of settlers from pocket-handkerchief Britain. And because the antipodean soil varied greatly in quality, settlement was scattered from the earliest times. There was no English-style communal life. Villages could not grow around crossroads—there were no crossroads and precious few roads that deserved the name.

But the settlers had brought with them a taste for self-government. Many of them came from towns which, since before the Middle Ages, had been engaged in a constant struggle for freedom in town administration. How else would it be possible to account for the optimism of those who made first moves in local government in the Colony?

### The Beginnings

From 1829 to 1838, the first nine years of the Colony's life, local affairs were controlled by the Colonial Secretary's Office. In 1838 came the first attempt at local government in the form of a Towns Improvement Act, which authorised the setting-up of Town Trusts and Country Trusts. The Act reflected the importance of communications in the infant Colony and the natural desire of the Imperial Government to lessen the cost to itself of such services. But the population of the Colony was only 2,000. It was an optimistic move indeed. [The Act was entitled "An Act to provide for the management of Roads, Streets and other internal Communications within the Settlement of Western Australia". Under the Act a Town Trust was formed at Perth as from 25 July 1838 and others followed later at Fremantle, Guildford, Albany and Bunbury. No attempt was made to establish Trusts in the sparsely populated rural areas. Ed.]

In the towns the Trusts were to be composed of resident Justices of the Peace and all proprietors of allotments held in fee simple, who had the right and obligation to elect a chairman each year. Outside the towns, the Trusts were to comprise Justices of the Peace and the proprietors of freehold land of 1,000 acres or more. Worthy of note is the adoption of the traditional English use of Justices of the Peace in local government—and the emphasis on direct democracy.

Elaborate proceedings were laid down for the appointment of chairmen and district committees, the delegation of powers, the preparation of reports and plans, borrowing arrangements, the levying of rates and tolls, and the appointment of treasurers, clerks,

surveyors and rate collectors. It was an Act that would have done justice to a State with a population of a million but in the infant Colony—in the country areas particularly—nearly every able-bodied man would have been needed to make it work.

But clearly something was needed. A [report prepared] in the Colony in 1838 said: "At the present time it can scarcely be said that any roads exist, although certain lines of communication have been improved by clearing them of timber, by bridging the streams and by establishing ferries in two places on the broader parts of the Swan River."

The settlers near York had been complaining bitterly about the condition of the roads—if they could be glorified by that name—into the hinterland. Attracted by the rich Avon Valley soil, they had begun to produce wheat and wool and were exporting sandalwood to Singapore. But the tracks over the Darling Range were in constant need of repair.

Early in 1838 a group of York people met in an hotel in that town and proposed the formation of a company similar to an English turnpike company to take over the York-Guildford Road. The initial capital was to be £300 in £10 shares. The company would maintain the road, impose fines and collect tolls—8d. for a horse and cart, 2d. per head for sheep, 2/- for a cart with two bullocks. But the Act of 1838 forestalled this move.

The Town Trusts were moderately successful. But much depended on the collection of tolls and, even in the Colony's biggest town, there were not hundreds of coaches entering and leaving town as there were in London. Little was collected . . . And nobody wanted to pay rates . . .

In April 1839, an Act was passed "to provide some mode by which funds applicable to that purpose (for roads) in each town may be raised by a general contribution from the inhabitants thereof."

In June 1839, a Perth Town Trust meeting was convened and it was proposed that £300 be raised for making footpaths. Perth struck its first rate—10/- per allotment to be paid in two half-yearly instalments. Predictably, the rates were hard to collect. One contemporary report said drily: "The collectors were not cordially received". Under the Act, the collector for each Town Trust was appointed by a general meeting of the Trust. If, during the year, he had been rather too zealous, he was not likely to be appointed for the following year.

The real trouble was that the Colony was still poverty-stricken. At the first general meeting of the Perth Town Trust in 1842, the chairman said: "I have found on inquiry at the Western Australian Bank that there is a balance in favour of the Trust of £22/4/6." It was not the kind of money with which the Trust could embark on the building of great highways.

The 1838 Act had produced no result at all in country areas outside townsites so an Act was passed in 1841 to [continue the Town Trusts and to] set up a General Road Trust. This was to be responsible for rural roads, bridges and ferries throughout the Colony. The Trust had a central committee [the Central Road Trust] and the power to create District Committees for various parts of the State. In 1843 it appointed such committees for Swan, York, Pinjarra, Canning, Albany, Leschenault and Vasse. The Trust's revenue was to come from tolls, loans, fees, government assistance and from voluntary labour and gifts of money. No provision was made for levying rates—and it was unlikely that, in the pioneering days of the 1840s, anyone would feel like knocking off work to make roads.

The Colony's population was only 4,000 and it was not surprising that the new Trust also did not work well. Even if rates had been levied, collection would have been difficult and income negligible. Labour was short and workers unreliable but the main problem was still shortage of funds. Indeed, the Trust could be described as desperately poor. A quarterly meeting might vote £25 for the new Fremantle road, £50 for improving the York-Albany route, £100 for the Toodyay road and £25 for the approaches to a bridge on the Murray and the coffers would be empty again.

Significantly, the farmers of York were still not satisfied. Thwarted over their turnpike company, they offered £100 to the Trust for repairs to the York road provided the Government matched their gift. A committee appointed in 1844 to examine the Colony's communications reported that the men of York were still complaining and suggested a toll gate at Mahogany Creek. It was a sign of the times that the tollkeeper was reimbursed by the granting to him of a free licence for a public house on the spot. He collected tolls in one hand and served beer with the other—that is, when users of the road did not escape the toll by skirting the gate.

Those who patronised the inn were not to drink the health of the Trust for too long. It was dissolved after six years and, in 1847, its functions handed over to a Central Board of Works. The Board, comprising eight nominated members, had the power to divide the Colony into eight districts. Each district was administered by a local Board elected by the owners of freehold land.

But the Central Board of Works was no more effective than its predecessors and it was dissolved in 1849. Its roadmaking and maintenance functions were again assumed—no doubt with a sigh—by the Governor. From 1849 until the important (for local government) year of 1871, the Governor and his officers were responsible for roadworks and communications throughout the State. [In the period 1849-1871 a few isolated Town Trusts were the only form of local government in the country areas.]

### Progress

From the time of the arrival of the first convicts in 1850, road-building in Perth and in the country made relatively rapid progress. By 1869 the Colony could boast 1,100 miles of road (although some of it was merely formed earth), 47 important bridges and 79 lesser ones. Apart from helping trade (particularly exports) and bringing smiles at last to the faces of the dour men of York, improved roads had a marked effect on social life.

The settlers developed a taste for race meetings which they have never lost. A community spirit began to form in country towns. Agricultural societies were founded. Enjoying as they did some prosperity, the pioneers became more vocal and began to exert pressure on the legislators in Perth—pressure which, in 1868, led to the Governor appointing District Committees to report on rural roads. [Committees were appointed for the districts of Pinjarra, York and Beverley, Newcastle, Wellington, Greenough, Dongara, Northam, Canning, Swan, Geraldton and Busselton.] Meanwhile Town Trust legislation was revised and consolidated in 1850 [in "An Ordinance to provide for the Improvement of Towns in Western Australia"]. An interesting feature was the appointment of the collector by the Trust chairman and not the Trustees.

In 1856 Perth became a city with the appointment of a Bishop. And then, under an Act of October, 1858, . . . [the title of the Perth Town Trust was changed to] the Perth City Council, comprising seven councillors who elected a chairman. The 1858 Act was a landmark in the development of local government in Western Australia. Its most important provision was to make possible the raising of loans on rates rather than tolls. But the Council, despite a certain confidence that the relationship between the city fathers and the Government would be more fruitful, was still in no position to change the face of the city. Its total indebtedness was never to exceed £1,000. All the same, it benefited from the use of convict labour and received contributions of up to £300 from the Government.

### The Real Foundations

In 1871, when the population was still only 25,000, legislation was passed which laid the foundations of the present structure of local government in W.A. The key Acts were the [Municipal Institutions Act] and [The District Roads Act]. The Town Trusts had lasted for 33 years. They had possessed only limited powers but they failed mainly because of inadequate and unstable finance. By 1871 there were seven Town Trusts—Perth, Fremantle, Albany, Bunbury, Busselton, Geraldton and Guildford. In that year the combined expenditure of the Albany, Bunbury, Guildford and Fremantle Trusts was only £170. Progress had been slow.

The [Municipal Institutions] Act of 1871 repealed the 1850 Act and constituted "the inhabitants of the City of Perth and their successors, inhabitants of the same . . . as a Body Corporate and Politic, by and under the name, style and title of the Council and Burgesses of the City of Perth." The city was divided into three wards, each ward electing by an annual ratepayers' ballot three councillors to the city council. The council chairman was elected by ratepayers in all three wards. The Governor-in-Council was empowered to declare any town to be a Municipality and was further authorised to define municipal boundaries and ward limits.

The Act extended the local franchise of the 1850 Act. In addition to resident Justices of the Peace and freehold landowners, lessees with a tenure of not less than one year were declared to be electors and ratepayers. A unique feature of the Act was the popular election of a paid local government official, the treasurer—a distinct departure from traditional English practice.

### More Powers to Towns

But the most striking feature of the 1871 Act was the increase in functions and powers given to the Municipalities. Apart from those listed in the 1850 Act, Municipalities took over some of the responsibilities previously handled by Justices of the Peace, clerks of the magistrates and various central bodies. These included the licensing and regulating of slaughterhouses, markets, carts and carriages, straying and grazing of livestock in towns, and dogs. Councils could draft bylaws to carry out these functions; they could condemn food unfit for human consumption, plant and preserve trees and shrubs and regulate weights and measures. Councils were also given the power to establish and maintain public libraries, museums, botanical gardens and places of public recreation—although the Governor's approval was still necessary for the spending of municipal funds on these establishments.

Here was the breakaway from the Town Trusts—from agencies responsible only for the maintenance of roads and bridges—to the status of authorities responsible for services touching the daily lives of people in country towns. Local government had come of age. Also for the first time in local government legislation, the Act laid down the procedure for arriving at the amount needed to be raised by rate assessments. The rating basis was defined as the annual valuation or, in the case of unoccupied or waste land, as one-tenth of its "full fair value".

When the Act was passed, the Governor proclaimed Fremantle, Guildford, Bunbury and Busselton, Albany and Geraldton (they had been Town Trusts) as Municipalities [on 20 February 1871]. York was proclaimed a Municipality two months later [on 4 March 1871].

### The Road Districts

The second piece of key legislation in 1871 was [The District Roads Act], which replaced the Crown as the authority responsible for communications in the country by locally-elected Road Boards. The first 18 were those of Mines (based on Northampton), Geraldton, Greenough, Irwin, Victoria Plains, Swan, Perth, Toodyay, Northam, York, Canning, Fremantle, Murray, Beverley, Wellington, Sussex, Plantagenet and Nicol Bay. In December, 1871, three more—Williams, Kojonup and Blackwood—were added. Many of the districts extended to the South Australian border and Nicol Bay (an indentation of the coast near Roebourne) took in all the territory north of the Murchison River. The greater part of most of these districts was empty and simply ignored.

Road Board powers, as distinct from those granted to Municipalities, were restricted to the construction and repair of roads, bridges and drainage works. Road Boards had seven members who retired in rotation and who elected a chairman from their own number—in contrast to the annual retirement of all municipal councillors and the direct election of council chairmen.

The [District Roads Act] was important because it gave a substantial measure of authority for local works to local residents. But the Government maintained close supervision of works on major roads; it checked local government decisions and still held, to a big extent, the power of the purse. For example, as late as 1885, the Kojonup Road Board could raise only £84/10/- for the year (by means of cart licences) compared with £610 granted by the Government.

Remarkably, Road Boards did not rate to any great degree before the turn of the century—again because of the elements of struggle and poverty in pioneering. In 1896 the rates collected by Road Boards totalled only £260.

### A New Era

But a new era of prosperity and confidence was dawning. The State achieved responsible government [in 1890] and, as if on cue, gold was found at Southern Cross, Coolgardie and Kalgoorlie. The State's population was 49,000 in 1891; by 1896 it had jumped to 137,000.

Many of the new settlers came from thriving communities and brought with them a sound knowledge of local government. They immediately agitated for their own Municipalities and there was an upsurge to 47 at the height of the gold rush.

By 1902 ratings had increased and Road Board collections for that year totalled £8,700 (Government grants, £66,630). Municipalities collected in rates £94,894 (Government grants, £81,435).

### This Century

The years to the turn of the century were the formative years, the years of struggle. Now, thanks largely to the gold rush, the State had a bigger population and an appreciable export income. With responsible government, planning at all levels could be more positive.

[With the decline of the gold rush many local authorities were disbanded but this was offset by the development of primary industry resulting in the establishment of Road Boards in other country areas.

In their early days Road Boards received no revenue from rating but relied on grants from the Government as their main source of revenue. This encouraged the formation of new authorities in any area where settlement was taking place and the residents wished to develop a townsite.

Isolation was probably the biggest influence in the formation of new authorities. The State was comprised of small isolated pockets of settlement, each of which wished to become self-contained to some degree. As new development took place, more centres were formed into local authorities and this somewhat haphazard growth proceeded with the progress of the State.

As the State developed, lines of communication (mainly railways) began to extend into the country and it was along these railways that the bigger communities were formed. As other settlements developed, local authorities were established and these had to be fitted in among those already in existence.

This, then, was the pattern by which local government has developed to its present form—not by a systematic and economic division of the State but in accordance with the immediate requirement.]

The brief legislative record of this century is that: [The District Roads] Act of 1871 (amended several times between 1888 and 1894) was consolidated in the [Roads Act of 1902]; the [Municipal Institutions] Act of 1871 was repealed [by the Municipal Institutions Act of 1895 which, in turn, was repealed by an Act of the same title in 1900. This last-mentioned Act was repealed] in 1906 by the Municipal Corporations Act, which continued in force until [30 June] 1961, and was repealed by the Local Government Act of 1960; the 1919 Road Districts Act similarly repealed . . . the Roads Act of 1911, and was in turn repealed by the Local Government Act of 1960. [This Act thus consolidated in one Statute the law relating to local government in Western Australia.]

### The Latest Legislation

... What has the 1960 Act done for local government in Western Australia? First of all, it has almost achieved the main intention of those who framed the legislation—uniformity between Municipalities and Road Districts. For example, financial years have been brought into line, making it easier for adjacent districts to amalgamate. The Act introduced the preferential voting system for all elections; previously Municipalities had used the preferential system (from 1919) and Road Boards the first-past-the-post system. On the other hand, mayors are still [able to be] elected by the electors, and most Shire Council Presidents by the Shire Councillors. Mayors may be elected by the Councillors from among their own members, and Shire Presidents may be elected by the electors at large (2 of them in fact are so elected), provided that a poll of electors agrees to the change of system.

Councils now have much wider powers and responsibilities. The basic responsibilities are for streets, footpaths, drainage and rubbish removal. In the welfare field they provide infant and maternal health clinics, nurseries, centres for the aged, home-help schemes and immunisation facilities. Under [various Acts] they are responsible for the control of vermin, noxious weeds and bushfires and—in most cases in the country—the licensing of vehicles and the control of traffic.

They have the right to establish, maintain and improve reserves, parks and recreation grounds. They may subsidise a doctor, dentist or veterinary surgeon or—with the consent of their electors—guarantee an income for these people. They may establish hospitals and district nursing schemes and may subsidise them. They may provide housing for employees or the public generally—including the housing of the aged, for which they can obtain a \$2-for-\$1 subsidy from the Federal Government.

They may provide water and electricity. They may establish transport services (some operate school buses). They may establish quarries, school hostels, abattoirs, parking stations, saleyards, swimming pools and markets. They may subsidise improvements to school grounds at the rate of \$1 for every \$1 provided by organisations like Parents and Citizens' Associations or by the Government.

They may provide airfields, clinics, community centres, civic centres, day nurseries, cultural and educational centres, sporting facilities, museums, libraries (usually with the co-operation of the State Library Board), youth club facilities, children's playgrounds and kindergartens. They may also engage in tourist promotion.

The [Local Government] Act has also provided for regional, or country, councils to handle functions delegated to them by the local authorities in their district. There are several regional councils for traffic control and one for vermin control. Many local authorities have regional groups or councils for health inspection purposes—and for traffic control—quite apart from the regional councils, which are separate legal entities. The groups of councils are looser associations, providing more flexibility for joining or leaving . . . .

Handling, as they do, . . . enormous sums of money, the Councils have come a long way from the days in the last century when they collected only a few pounds annually from tolls, did virtually no rating and had to go cap-in-hand to Governments for any sizeable sums of money.'

## PRINCIPAL EVENTS OF 1970

- January 19.* Arrival at Kewdale freight terminal of the first standard gauge freight train to run direct from Sydney to Perth.
- January 23.* The Minister for Industrial Development, the Hon. C. W. M. Court, announced that the State Government had approved a proposal by Hamersley Iron Pty. Limited to extend its iron ore development from Mt Tom Price to Paraburdoo and construct Australia's biggest capacity port at East Intercourse Island near Dampier.
- February 26.* 'The Indian-Pacific' passenger express arrived in Perth on its inaugural run from Sydney.
- March 5.* The new Western Australian Herbarium building in South Perth was officially opened by the Premier, Sir David Brand.
- March 17.* The second period of the second session of the twenty-sixth Parliament commenced.
- April 2.* Commencement of the first direct air service between Western Australia and Japan.
- May 14.* The second period of the second session of the twenty-sixth Parliament ended.
- May 21.* The Amax Bauxite Corporation announced plans for the investment of \$249 million in the development of bauxite reserves in the West Kimberley region.
- May 29.* First consignment of nickel refined at Kwinana from Kambalda concentrates was shipped from Western Australia.
- June 21.* Australia's biggest non-nuclear explosion detonated at the main Ord River damsite to provide rock fill for the dam.
- July 1.* Control of the Perth Branch of the Royal Mint passed to the State Government and its name changed to 'The Perth Mint'. New liquor laws came into operation throughout the State. Announced by West Australian Petroleum Pty. Limited that a natural gas transmission pipeline, 255 miles in length, would be built from Dongara to Kwinana and Pinjarra.
- July 9.* The Postmaster-General, the Hon. A. S. Hulme, officially opened the transcontinental micro-wave system in Perth.
- August 5.* Official opening of a shipping control tower of modern design at Port Hedland by the Minister for Works and Water Supplies, the Hon. Ross Hutchinson.
- August 6.* The third session of the twenty-sixth Parliament commenced.
- August 23.* Australian maritime record made when the 118,104 ton 'Fukukawa Maru', the biggest ship to enter any Australian port, and the 105,390 ton 'Eisho Maru' berthed together at the Nelson Point ore pier at Port Hedland. It was the first time two ships each of more than 100,000 tons had tied up in an Australian port at the same time.
- September 15.* The nickel refinery of Western Mining Company at Kwinana was officially opened by the Premier, Sir David Brand.
- October 1.* A new direct shipping service between Indonesia and Western Australia commenced.
- October 17.* Official opening of the Fremantle Branch of The Western Australian Museum by the Governor-General, Sir Paul Hasluck.
- October 26.* The State's new minimum wage of \$49 per week for adult males came into operation.
- October 30.* The Prime Minister, the Right Hon. J. G. Gorton, announced that the Federal Government had approved plans for building a causeway linking Garden Island with the mainland and for the construction of naval support facilities at Garden Island by 1975.
- November 4.* An agreement (subsequently ratified by Parliament) was signed by the State Government and Western Mining Corporation Limited to establish a nickel smelter about nine miles south of Kalgoorlie.
- November 18.* An agreement (subsequently ratified by Parliament) was signed by the State Government and Alwest Pty. Limited for the establishment of an alumina refinery at or near Bunbury.
- November 20.* A major power station at Cockburn Sound was officially opened by the Premier, Sir David Brand.
- November 26.* The third session of the twenty-sixth Parliament ended.
- December 3.* Ceremony to mark the sale of the millionth bale of wool at the Albany wool sales.
- December 5.* Legislation became operative whereby the qualifying age for enrolment as an elector for both the Legislative Council and the Legislative Assembly was reduced from twenty-one years of age to eighteen years of age.
- December 11.* Commencement of the first Test cricket match to be played in Western Australia.
- December 15.* An Australian record tonnage of 113,380 tons of iron ore left Port Hedland for Japan in the bulk carrier 'Fukukawa Maru'.
- December 19.* Official opening of the North Dandalup pipehead dam by the Minister for Works and Water Supplies, the Hon. Ross Hutchinson.
- December 31.* The population of Western Australia reached an estimated 1,001,300.

# LIST OF SPECIAL ARTICLES AND MISCELLANEOUS MATTER CONTAINED IN PREVIOUS ISSUES

(Commencing with New Series: No. 1-1957)

This list refers to special articles and other more or less important miscellaneous matter which have appeared in previous issues of the Year Book but which are not included, or are included in an abbreviated form only, in the present issue. Owing to considerations of space, the deletions are necessary to make room for new material and the list will be revised each year to provide readers with a cumulative index of special articles or topics. In cases where an article was published in more than one previous issue, the reference to its last appearance only is given, as earlier references can be traced back in the List of Special Articles in the 1969 or 1970 Year Book.

Article or Topic	Year Book
Basic wage, historical summary—	
Commonwealth ....	1968, pp. 396-401
State ....	1968, pp. 403-5
Computer Service Centre, Perth ....	1969, p. 504
Conservation of the Flora ....	1970, pp. 59-61
Cyclones, tropical ....	1969, pp. 43-50
Electoral Divisions (Commonwealth), origin of names of ....	1970, p. 530
Electoral Provinces and Electoral Districts (State) ....	1969, pp. 102-3
Flora of Western Australia—	
Acacia ....	1965, pp. 59-60
'Christmas tree' ( <i>Nuytsia floribunda</i> ) ....	1962, p. 51
Economic value of the flora ....	1968, pp. 54-5
Orchids ....	1968, pp. 48-9
Special features of the flora ....	1962, pp. 51-2
Governors and Administrators of Western Australia—	
1828 to 1951 ....	1957, p. 65
1901 to 1959 ....	1960, p. 81
1901 to 1963 ....	1968, p. 89
Governor Stirling's Commission dated 4 March 1831, text of ....	1965, pp. 452-4
Historical review—chronological notes from 1829 ....	1957, pp. 2-18
	1960, pp. 2-22
	1962, pp. 2-24, 404-9
	1964, pp. 2-32
	1965, pp. 2-31, 444-51
	1967, pp. 2-33
Land—methods of alienation ....	1969, pp. 276-8
Land—methods of Leasing ....	1969, pp. 278-83
Land settlement schemes, government ....	1968, pp. 244-6
Land tenure system, origin and development of ....	1960, pp. 198-9
Legislation, summary of—	
1957 and 1958 ....	1960, pp. 87-9
1959 and 1960 ....	1962, pp. 89-96
1961 and 1962 ....	1964, pp. 104-11
1963 and 1964 ....	1965, pp. 107-14
1965 ....	1967, pp. 111-15
1966 ....	1968, pp. 99-106
1967 ....	1969, pp. 108-15
1968 ....	1970, pp. 111-17



Article or Topic	Year Book
McNess Housing Trust ....	1969, p. 205
Meteorological services—	
History of ....	1960, pp. 34-5
Provision of....	1966, pp. 46-7
Parliamentary procedure and administrative machinery ....	1970, pp. 106-9
Pesticides, effect on beneficial forms of life ....	1969, pp. 90-1
Poisonous plants of Western Australia ....	1970, pp. 56-9
Railways—	
Origin and development ....	1968, pp. 360-1
Private ....	1965, p. 365
Timber ....	1968, pp. 363-4
Rainfall in agricultural areas, 1969 ....	1970, p. 529
Sporting organisations ....	1970, pp. 196-200
Tornadoes ....	1970, pp. 48-51
Trade, historical summary of ....	1967, pp. 346-7
University—principal benefactions ....	1969, p. 173
Wheat, development of production ....	1968, p. 270

## LIST OF MAPS CONTAINED IN PREVIOUS ISSUES

(Commencing with New Series: No. 1-1957)

Map <sup>(1)</sup>	Year Book
Air routes at 31 December 1956 ....	1957, p. 289
Air routes at 30 June 1969 ....	1970, <i>between</i> p. 448 and p. 449
Areas of current development ....	1970, <i>facing</i> p. 336
Electoral Provinces and Electoral Districts (State) ....	1969, <i>between</i> p. 96 and p. 97
Electricity supplies ....	1967, <i>facing</i> p. 320
Perth Statistical Division ....	1968, <i>facing</i> p. 112
Port of Fremantle (Outer and Inner Harbour) ....	1970, <i>facing</i> p. 448
Production, main areas of ....	1957, p. 73
Railways and road services—routes operated ....	1967, <i>facing</i> p. 384
Railways road services—routes operated ....	1964, p. 354
Rainfall ....	1969 <i>facing</i> p. 32
Rainfall in agricultural areas, 1969 ....	1970, p. 529
Roads, main and important secondary ....	1968, <i>facing</i> p. 368
Vegetation Provinces ....	1968, p. 51

<sup>(1)</sup> All maps listed refer to Western Australia.

## NOTE ON STATISTICAL DIVISIONS

Western Australia is divided into a number of municipal districts for the purposes of local government administration. At 31 December 1968 there were 144 such districts, which are used as the basis of presentation of data derived not only from the population census but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form.

The partition of the Australian States into Statistical Divisions originated from a resolution of a conference of 1928 between the Federal Health Council of Australia and the Statisticians of the Commonwealth and the States concerning the need for the delineation of areas appropriate for the purposes of statistical tabulation. They first became operative in 1929 after consultation between the Commonwealth Statistician, the Statisticians of the States in collaboration with the State health authorities, and the Commonwealth Department of Health. Although Statistical Divisions were devised initially for use in the compilation and presentation of vital statistics, the advantages of extending the system to other fields of statistical investigation were recognised at once and it soon came to have general application in cases where consideration of geographic areas was relevant.

The Statistical Divisions of Western Australia and their component local government areas at 31 December 1968 are listed on the following pages and are shown on the map of the State inside the back cover. The population of each Division as recorded at each of the four most recent Population Censuses is shown in the following table. The areas of the Divisions at 30 June 1970 are also given.

STATISTICAL DIVISIONS—POPULATION (a) AND AREA

Statistical Division	Population at Census of 30 June—				Area at 30 June 1970
	1947	1954	1961	1966	
	persons	persons	persons	persons	square miles
Perth ....	302,968	395,049	475,398	558,821	2,073
South-West ....	51,973	68,553	71,637	72,823	11,031
Southern Agricultural ....	24,948	36,125	41,623	44,528	22,046
Central Agricultural ....	43,790	55,924	57,594	58,396	30,270
Northern Agricultural ....	24,665	32,068	35,785	38,269	32,040
Eastern Goldfields ....	37,722	34,578	34,142	33,930	249,013
Central ....	6,370	4,794	3,959	3,486	218,011
North-West ....	2,638	4,220	4,563	8,355	77,611
Pilbara ....	1,651	2,650	3,243	7,383	171,462
Kimberley ....	2,774	3,543	5,668	7,644	162,363
Migratory (b) ....	2,981	2,267	3,017	3,038	....
WHOLE STATE ....	502,480	639,771	736,629	836,673	975,920

(a) Excluding full-blood Aborigines.

(b) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

# LIST OF STATISTICAL DIVISIONS

## with component Local Government Areas at 31 December 1968

(See also pages 121 and 548)

**PERTH****Cities**

FREMANTLE  
MELVILLE  
NEDLANDS  
PERTH  
SOUTH PERTH  
SUBIACO

**Towns**

CLAREMONT  
COTTESLOE  
EAST FREMANTLE  
MIDLAND  
MOSMAN PARK

**Shires**

Armadale-Kelmscott  
Bassendean  
Bayswater  
Belmont  
Canning  
Cockburn  
Gosnells  
Kalamunda  
Kwinana  
Mundaring  
Peppermint Grove  
Perth  
Rockingham  
Serpentine-Jarrahdale  
Swan-Guildford  
Wanneroo

**SOUTH-WEST****Town**

BUNBURY

**Shires**

Augusta-Margaret River  
Balingup  
Boddington  
Bridgetown  
Busselton  
Capel  
Collie  
Dardanup  
Donnybrook  
Greenbushes  
Harvey  
Mandurah  
Manjimup  
Murray  
Nannup  
Upper Blackwood  
Waroona

**SOUTHERN AGRICULTURAL****Town**

ALBANY

**Shires**

Albany  
Broomehill  
Cranbrook  
Denmark  
Dumbleyung  
Gnowangerup  
Katanning  
Kojonup  
Lake Grace  
Nyabing-Pingrup  
Plantagenet  
Tambellup  
Wagin  
West Arthur  
Woodanilling

**CENTRAL AGRICULTURAL****Towns**

NARROGIN  
NORTHAM

**Shires**

Beverley  
Brookton  
Bruce Rock  
Corrigin  
Cuballing  
Cunderdin  
Dowerin  
Goomalling  
Kellerberrin  
Kondinin  
Koorda  
Kulin  
Merredin  
Mount Marshall  
Mukinbudin  
Narembeen  
Narrogin  
Northam  
Nungarin  
Pingelly  
Quairading  
Tanmin  
Toodyay  
Trayning  
Wandering  
Westonia  
Wickepin  
Williams  
Wyalkatchem  
York

**EASTERN GOLDFIELDS****Towns**

BOULDER  
KALGOORLIE

**Shires**

Coolgardie  
Dundas  
Esperance  
Kalgoorlie  
Laverton  
Leonora  
Menzies  
Ravensthorp  
Yilgarn

**CENTRAL****Shires**

Cue  
Meekatharra  
Mount Magnet  
Murchison  
Sandstone  
Wiluna  
Yalgoo

**NORTH-WEST****Shires**

Ashburton  
Carnarvon  
Exmouth  
Shark Bay  
Upper Gascoyne

**NORTHERN AGRICULTURAL****Town**

GERALDTON

**Shires**

Carnamah  
Chapman Valley  
Chittering  
Coorow  
Dalwallinu  
Dandaragan  
Gingin  
Greenough  
Irwin  
Mingenew  
Moora  
Morawa  
Mullewa  
Northampton  
Perenjori  
Three Springs  
Victoria Plains  
Wongan-Ballidu

**PILBARA****Shires**

Marble Bar  
Nullagine  
Port Hedland  
Roebourne  
Tableland

**KIMBERLEY****Shires**

Broome  
Halls Creek  
West Kimberley  
Wyndham-East Kimberley

## LIST OF LOCAL GOVERNMENT AREAS

at 31 December 1968

(See also pages 121 and 548)

Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated	Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated
ALBANY ....	T.	Southern Agricultural	Marble Bar ....	S.	Pilbara
Albany ....	S.	Southern Agricultural	Meekatharra ....	S.	Central
Armada-Kelmscott ....	S.	Perth	MELVILLE ....	C.	Perth
Ashburton ....	S.	North-West	Menzies ....	S.	Eastern Goldfields
Augusta-Margaret River ....	S.	South-West	Merredin ....	S.	Central Agricultural
Balingup ....	S.	South-West	MIDLAND ....	T.	Perth
Bassendean ....	S.	Perth	Mingenew ....	S.	Northern Agricultural
Bayswater ....	S.	Perth	Moora ....	S.	Northern Agricultural
Belmont ....	S.	Perth	Morawa ....	S.	Northern Agricultural
Beverley ....	S.	Central Agricultural	MOSMAN PARK ....	T.	Perth
Boddington ....	S.	South-West	Mount Magnet ....	S.	Central
BOULDER ....	T.	Eastern Goldfields	Mount Marshall ....	S.	Central Agricultural
Bridgetown ....	S.	South-West	Mukinbudin ....	S.	Central Agricultural
Brookton ....	S.	Central Agricultural	Mullewa ....	S.	Northern Agricultural
Broome ....	S.	Kimberley	Mundaring ....	S.	Perth
Broomehill ....	S.	Southern Agricultural	Murchison ....	S.	Central
Bruce Rock ....	S.	Central Agricultural	Murray ....	S.	South-West
BUNBURY ....	T.	South-West	Nannup ....	S.	South-West
Busselton ....	S.	South-West	Narembene ....	S.	Central Agricultural
Canning ....	S.	Perth	NARROGIN ....	T.	Central Agricultural
Capel ....	S.	South-West	Narrogin ....	S.	Central Agricultural
Carnamah ....	S.	Northern Agricultural	NEDLANDS ....	C.	Perth
Carnarvon ....	S.	North-West	NORTHAM ....	T.	Central Agricultural
Chapman Valley ....	S.	Northern Agricultural	Northam ....	S.	Central Agricultural
Chittering ....	S.	Northern Agricultural	Northampton ....	S.	Northern Agricultural
CLAREMONT ....	T.	Perth	Nullagine ....	S.	Pilbara
Cockburn ....	S.	Perth	Nungarin ....	S.	Central Agricultural
Collie ....	S.	South-West	Nyabing-Pingrup ....	S.	Southern Agricultural
Coolgardie ....	S.	Eastern Goldfields	Peppermint Grove ....	S.	Perth
Coorow ....	S.	Northern Agricultural	Perenjori ....	S.	Northern Agricultural
Corrigin ....	S.	Central Agricultural	PERTH ....	C.	Perth
COTTESLOE ....	T.	Perth	Perth ....	S.	Perth
Cranbrook ....	S.	Southern Agricultural	Pingelly ....	S.	Central Agricultural
Cuballing ....	S.	Central Agricultural	Plantagenet ....	S.	Southern Agricultural
Cue ....	S.	Central	Port Hedland ....	S.	Pilbara
Cunderdin ....	S.	Central Agricultural	Quairading ....	S.	Central Agricultural
Dalwallinu ....	S.	Northern Agricultural	Ravensthorpe ....	S.	Eastern Goldfields
Dandaragan ....	S.	Northern Agricultural	Rockingham ....	S.	Perth
Dardanup ....	S.	South-West	Roebourne ....	S.	Pilbara
Denmark ....	S.	Southern Agricultural	Sandstone ....	S.	Central
Donnybrook ....	S.	South-West	Serpentine-Jarrahdale ....	S.	Perth
Dowerin ....	S.	Central Agricultural	Shark Bay ....	S.	North-West
Dumbleyung ....	S.	Southern Agricultural	SOUTH PERTH ....	C.	Perth
Dundas ....	S.	Eastern Goldfields	SUBIACO ....	C.	Perth
EAST FREMANTLE ....	T.	Perth	Swan-Guildford ....	S.	Perth
Esperance ....	S.	Eastern Goldfields	Tableland ....	S.	Pilbara
Exmouth ....	S.	North-West	Tambellup ....	S.	Southern Agricultural
FREMANTLE ....	C.	Perth	Tammin ....	S.	Central Agricultural
GERALDTON ....	T.	Northern Agricultural	Three Springs ....	S.	Northern Agricultural
Gingin ....	S.	Northern Agricultural	Toodyay ....	S.	Central Agricultural
Gnowangerup ....	S.	Southern Agricultural	Trayning ....	S.	Central Agricultural
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Summary from 1829 ....	1829-1969	Sept. 1970	0.20	0.26
ABSTRACT OF STATISTICS OF LOCAL GOVERNMENT AREAS (Annual) (b) ....	1970	Nov. 1970	0.50	0.68

(a) Within Australia and to Christmas Island, Cocos Island, Lord Howe Island, Norfolk Island, Nauru and Papua-New Guinea.  
(b) Includes statistics for individual local government areas. (c) Ceased publication with statistics for the year 1967-68. See also footnote (d). (d) Replaces the *Statistical Register of Western Australia* for 1968-69 and subsequent years.

## MIMEOGRAPHED PUBLICATIONS

(Available free of charge on application)

Subject	Frequency of issue	Latest issue at 31 May 1971	Published
ACCIDENTS—			
Industrial Accidents ....	Annually	1969-70	Dec. 1970
Road Traffic Accidents involving Casualties ....	Quarterly	Dec. qr. 1970	May 1971
Road Traffic Accidents involving Casualties (a) ....	Annually	1970	May 1971
BUILDING—			
Building Operations (a) ....	Quarterly	Dec. qr. 1970	April 1971
Building Permits and Approvals (a) ....	Monthly	April 1970	May 1971
Number of New Houses and Flats (preliminary estimates) ....	Quarterly	Mar. qr. 1971	May 1971
EMPLOYMENT—			
Wage and Salary Earners in Civilian Employment ....	Annually	June 1966 to June 1970	Oct. 1970
FINANCE—			
Fire, Marine and General Insurance Statistics ....	Annually	1969-70	Feb. 1971
Local Government Finance Statistics ....	Annually	1968-69	Nov. 1970
Local Government Revenue and Expenditure: Budget Estimates (a) ....	Annually	1970-71	Dec. 1970
Permanent Building Societies ....	Monthly	March 1971	May 1971

continued overleaf

## STATISTICAL PUBLICATIONS—continued

## MIMEOGRAPHED PUBLICATIONS—continued

Subject	Frequency of issue	Latest issue at 31 May 1971	Published
<b>MOTOR VEHICLES—</b>			
Motor Vehicle Registrations	Monthly	April 1971	May 1971
Motor Vehicle Registrations (a)	Annually	1969	Aug. 1970
<b>POPULATION AND VITAL STATISTICS—</b>			
Divorce	Annually	1970	May 1971
Intercensal Changes in Population (a)	Irregular	1961-1966	June 1968
One Million Western Australians	.....	.....	Feb. 1971
Population and Occupied Dwellings: Censuses, 1911 to 1966 (a)	Irregular	1911 to 1966	Feb. 1968
Population, Dwellings and Vital Statistics (Local Government Areas and Statistical Divisions) (a)	Annually	1966-1970	Jan. 1971
Projections of the Population	.....	1967 to 1976	Feb. 1969
Quarterly Summary of Population and Vital Statistics	Quarterly	Dec. qr. 1970	May 1971
<b>PRIMARY PRODUCTION—</b>			
Agricultural and Pastoral Statistics (general summary)	Annually	1968-69	Mar. 1970
Agricultural Census: Principal Statistics (preliminary statement) (b)	Annually	1970-71	May 1971
Apples and Pears in Cool Stores	Monthly	April 1971	May 1971
Artificial Fertiliser Used on Rural Holdings (a)	Annually	1969-70	Mar. 1971
Bee Keeping Statistics	Annually	1969-70	Dec. 1970
Catch of Fish and Crustaceans	Monthly	Oct. 1970	May 1971
Cattle and Pigs (a)	Annually	1970	Jan. 1971
Cereal Crop Forecast (c)	Annually	1970-71	Nov. 1970
Chicks Hatched and Poultry Slaughtered	Monthly	Mar. 1971	May 1971
Ewe Matings for Lambing	Annually	1969 and 1970	Feb. 1971
Fisheries	Annually	1968-69	Mar. 1971
Fisheries (preliminary)	Annually	1969-70	Mar. 1971
Fruit (a)	Annually	1969-70	Mar. 1971
Grain and Seed Harvesters on Rural Holdings (a)	Triennially	1970	Mar. 1971
Grain Crops and Cereal Varieties (a)	Annually	1969-70	Jan. 1971
Hay, Green Feed and Silage (a)	Annually	1969-70	Jan. 1971
Irrigation (a)	Annually	1969-70	Feb. 1971
Livestock Slaughtered and Meat Produced	Annually	1969-70	Jan. 1971
Machinery on Rural Holdings (a)	Annually	1970	Feb. 1971
Mineral Exploration	Annually	1969-70	April 1971
Pasture Seed (a)	Annually	1969-70	Feb. 1971
Rock Lobsters Held in Cold Stores and Exported	Monthly	April 1971	May 1971
Rural Land Utilisation (a)	Annually	1969-70	Dec. 1970
Sheep, Lambing and Wool Clip (a)	Annually	1969-70	Dec. 1970
Tractors on Rural Holdings (a)	Triennially	1969	Mar. 1970
Value of Primary Production (excluding Mining and Quarrying) (preliminary statement)	Annually	1969-70	Feb. 1971
Vegetables (a)	Annually	1969-70	Mar. 1971
Wheat for Grain (a)	Annually	1969-70	Nov. 1970
<b>SECONDARY PRODUCTION—</b>			
Factory Statistics (preliminary)	Annually	1967-68	Feb. 1969
Factory Statistics (general summary)	Annually	1967-68	July 1969
<b>TRADE (EXTERNAL)—</b>			
External Trade (Overseas and Interstate)	Annually	1969-70	Feb. 1971
Interstate Trade	Annually	1969-70	Nov. 1970
Quarterly Summary of Overseas Trade Statistics	Quarterly	To Mar. 1971	May 1971
<b>TRADE (INTERNAL)—</b>			
New Agricultural Machinery and Tractor Statistics (Deliveries and Sales)	Quarterly	Sept. qr. 1970	Mar. 1971
Wholesale Sales and Stocks of Wine and Brandy	Annually	1968-69 and 1969-70	Nov. 1970
<b>GENERAL—</b>			
Indicators of Business Activity	Monthly	May 1971	May 1971
Monthly Statistical Summary	Monthly	May 1971	May 1971
Western Australia in relation to Australia	Annually	1969-70	June 1970

(a) Includes statistics for individual local government areas. (b) Entitled 'Rural Census: Principal Statistics (preliminary statement)' in issue for 1969-70. (c) Entitled 'Wheat Crop Forecast' in issue for 1969-70.

NOTE. In addition to the preceding publications, a number of bulletins which deal exclusively with this State are produced by the Commonwealth Statistician, Canberra who also issues many publications which contain particulars for Western Australia as a component of Australian totals. A complete list of all publications currently issued by the Central and the various State Offices of this Bureau appears in 'Publications of the Commonwealth Bureau of Census and Statistics' issued by the Commonwealth Statistician, copies of which are available free of charge from the Western Australian Office at the address shown on page 597.



